

DE GRUYTER
MOUTON

INTRA-INDIVIDUAL VARIATION IN LANGUAGE

*Edited by Alexander Werth, Lars Bülow,
Simone E. Pfenninger and Markus Schiegg*

TRENDS IN LINGUISTICS

EBSCO Publishing : eBook Collection (EBSCOhost) - printed on
2/9/2021 8:30 PM via
AN: 1202 ; Alexander Werth, Lars Blow, Simone E. Pfenninger,
Markus Schiegg.; Intra-individual Variation in Language
Accessions335141

Alexander Werth, Lars Bülow, Simone E. Pfenninger, Markus Schiegg (Eds.)
Intra-individual Variation in Language

Trends in Linguistics Studies and Monographs



Editors

Chiara Gianollo

Daniël Van Olmen

Editorial Board

Walter Bisang

Tine Breban

Volker Gast

Hans Henrich Hock

Karen Lahousse

Natalia Levshina

Caterina Mauri

Heiko Narrog

Salvador Pons

Niina Ning Zhang

Amir Zeldes

Editor responsible for this volume

Daniël Van Olmen

Volume 363

Intra-individual Variation in Language



Edited by
Alexander Werth, Lars Bülow,
Simone E. Pfenninger, Markus Schiegg

DE GRUYTER
MOUTON

ISBN 978-3-11-074285-5

e-ISBN (PDF) 978-3-11-074303-6

e-ISBN (EPUB) 978-3-11-074312-8

ISSN 1861-4302

Library of Congress Control Number: 2021936926

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at <http://dnb.dnb.de>.

© 2021 Walter de Gruyter GmbH, Berlin/Boston

Typesetting: Integra Software Services Pvt. Ltd.

Printing and binding: CPI books GmbH, Leck

www.degruyter.com

Contents

Lars Bülow, Simone E. Pfenninger, Markus Schiegg, and Alexander Werth
Introduction — 1

Christiane Ulbrich and Alexander Werth
What Is Intra-individual Variation in Language? — 9

Part I: Phonetic-phonological Dimension

Christiane Ulbrich
Everyone Is Different, So Everyone Is the Same – Intra-individual Variation in Second Language Acquisition — 47

Johanna Fanta-Jende
Situational Effects on Intra-individual Variation in German – Reflexes of Middle High German *ei* in Austrian Speech Repertoires — 87

Lars Bülow, Andrin Büchler, Nicolai Rawyler, Christa Schneider, and David Britain
Linguistic, Social, and Individual Factors Constraining Variation in Spoken Swiss Standard German — 127

Part II: Syntactic-morphological Dimension

Grit Nickel
Intra-individual Variation in Nominal Inflection: Analyses of Directly Elicited Data of the Bavarian Linguistic Atlas — 177

Sophie Ellsäßer and Oliver Schallert
Intra-individual Variation in Morphosyntax: A Constraint-based Perspective — 207

Nathalie Entringer
Inter- and Intra-individual Variation in Luxembourgish. A Quantitative Analysis of Crowd-sourced Speech Data — 243

Part III: Historical Dimension

Anita Auer

**Of *Zibele* and *Bölle*: Patterns of Language Variation in the Swiss Language
Island New Glarus (North America) — 283**

Anna D. Havinga

Intra-individual Variation in Nineteenth-century Private Letters — 315

Marie-Luis Merten

**Intra-individual Variation from a Historical Perspective: Towards a Usage-based
Model of Constructional Change and Variation — 347**

Simon Pröll

**How many Natives with how many Systems? Intra-individual Variation and the
Threshold of Multilingualism in Standard German Speakers — 379**

Index — 407

Lars Bülow, Simone E. Pfenninger, Markus Schiegg,
and Alexander Werth

Introduction

1 Outline

Intra-individual variation (IAV), that is, observable variation within individual entities, plays an important role in the humanities as well as in the natural and social sciences. In biology, for instance, the number of petals within the same plant was found to vary considerably, and in developmental psychology, personality traits were found to change in the development of individuals. Of interest is, *inter alia*, the fact that there are different types of IAV. In psychology, for instance, IAV is to be further distinguished as a function of the time period considered: across long-term periods (developmental change), across trials within tasks (inconsistency), and across tasks at a given point in time (dispersion). Many types of IAV, however, have received less attention with respect to language (cf. Schiegg 2018; Bülow and Pfenninger 2021), which is regrettable for several reasons.

According to certain (meta)theories in Second Language Acquisition (SLA), for instance, IAV represents an important source of information in the area of language acquisition, especially in studies on individual patterns of language learning and disorders (cf. de Bot, Lowie, and Verspoor 2007; Larsen-Freeman and Cameron 2008). A different degree of IAV is noticeable, for instance, in written language production data obtained at different stages of a disease (Schiegg and Thorpe 2017). In the realm of forensics, linguists use variation within a text as an indicator of whether a text was produced by one or several authors (cf. Drommel 2016). Numerous long-term studies were carried out within the field of variationist linguistics considering individual language use (e.g. Labov 1972, 1994; Harrington, Palethorpe, and Watson 2000; Gerstenberg and Voeste 2015) and socio-situational factors affecting intra-individual variation, which can similarly be observed in historical data (e.g. Hernández-Campoy and García-Vidal 2018).

Acknowledgments: We are grateful to the Friedrich-Alexander University Erlangen-Nürnberg, the Paris Lodron University Salzburg, the Bavarian Ministry of Science and the Arts, and the Internationale Gesellschaft für Dialektologie des Deutschen (IGDD) for their financial support in the preparatory phase of the compilation of the volume. We also thank the group of reviewers for their valuable work in improving the contributions of this volume, David Singleton for English proofreading and Diana Hebel for her careful work on the production of the volume.

<https://doi.org/10.1515/9783110743036-001>

An important insight of these studies is that intra- and inter-individual variation have widely differing characteristics and implications. However, linguistic research to date lacks both empirical and theoretical work that provides more detailed information on the occurrence of intra-individual variation and the reasons for its occurrence. Most research methodologies in various linguistic fields have employed inter-individual analyses, which provide information about the state of affairs of the population. For instance, despite recent findings that intra-individual variation is an important source of information in addition to the mean performance in sociolinguistics and psycholinguistics, the empirical evidence is still far from sufficient to demonstrate the usefulness of adding a measure of variability to that of the mean level.

On the one hand, the lack of research in this area might have to do with the fact the methods for “doing” IAV and researching IAV-related issues using insights from variationist and complexity theories have remained relatively elusive. On the other hand, the scarcity of IAV-related research is due to historical reasons. In Chomsky’s (1965: 13) view, a generative grammar describes the competence of an ideal speaker-hearer in a homogeneous speech community. Also, in traditional dialectology, with its concept of the representative single informant (NORM, standing for “nonmobile, older, rural-male”; cf. Chambers and Trudgill 1998: 29), the homogeneity postulate took precedence above observable IAV. In extreme cases of corpus linguistics, free variation – the prototype of IAV – has been blatantly disregarded. This view has also been adopted by dialectologists and sociolinguists. König (2010: 497), for example, cautions that there may be no such thing as free variation, which is why researchers should avoid abandoning the search for determining parameters too early (see also Preston 1996: 25).

2 Research questions

This volume deals with IAV from various theoretical and empirical perspectives of different linguistic subdisciplines addressing, among others, the following questions.

To start with the theoretical perspective: In general, what does IAV tell us about the status of different varieties or even languages? Pröll (in this volume) asks, for example, whether the IAV “of speakers using closely related varieties is a form of monolingualism [. . .] (suggesting inherent variability of just *one* system, allowing for output in multiple varieties) or a form of multilingualism (with variation occurring between two or more discrete systems of one speaker)”. Getting more specific, Ulbrich and Werth (in this volume) inquire whether we

need to distinguish different forms of IAV and, if yes, which ones. They further ask which theoretical frameworks are suitable to explain which forms of IAV. Other chapters such as those of Bülow et al. (in this volume), Ellsäßer and Schallert (in this volume), and Fanta-Jende (in this volume) address the theoretical question whether patterns of IAV can be linked to patterns of inter-individual variation on the group level. Thus, these chapters aim to grasp how IAV and inter-individual variation are related to each other, within both cross-sectional (apparent-time) data and real-time data. Furthermore, these chapters also pose the question how researchers should methodologically deal with non-linear developments in language variation and change (e.g. Bülow and Vergeiner 2021) – a question that is also made relevant to non-linear development in language acquisition in Ulbrich and Werth's overview chapter (in this volume). Furthermore, from a theoretical perspective, Ulbrich and Werth (in this volume) also address the question of the status of observable variation: Is there such a thing as free variation or free IAV? If so, what is the relationship to variation that can be explained by linguistic and extra-linguistic factors? As all chapters in this volume show, these theoretical questions are combined with methodological and empirical questions.

The majority of the contributions in this volume are empirically oriented. In the context of this volume, the following empirical questions are asked:

- Which linguistic and extra-linguistic factors explain IAV?
- Is IAV sensitive to linguistic constraints (Havinga in this volume; Bülow et al. in this volume; Auer in this volume; Entringer in this volume; Ellsäßer and Schallert in this volume)? Are there any differences for the various linguistic levels (phonetic, morphological, syntactic)?
- What does IAV mean for co-occurrence restrictions and lectal coherence (Ellsäßer and Schallert in this volume)?
- Is IAV sensitive to different degrees of formality in speech (Bülow et al. in this volume; Fanta-Jende in this volume)?
- Is IAV affected by accommodation strategies and different audiences (Ulbrich in this volume)? How are these accommodation effects constrained?
- Is IAV connected to stylisation and identity construction (Havinga in this volume; Merten in this volume)?
- Is there an observable areal dimension of IAV (Ellsäßer and Schallert in this volume; Entringer in this volume)? Are there regions where speakers show more IAV than in other regions? If yes, how can these regions be characterised?
- Is there observable IAV that cannot be explained by linguistic and extra-linguistic factors (Entringer in this volume; Bülow et al. in this volume; Havinga in this volume)?

- Can group-level results be generalised to individual language usage and *vice versa* (Fanta-Jende in this volume; Bülow et al. in this volume; Ellsäßer and Schallert in this volume)? Do averaged patterns of inter-speaker variation mirror the language behaviour of individual speakers?
- Does IAV indicate (actual) patterns of language change (Merten in this volume; Auer in this volume)? Can IAV be traced to the realisation of constructions belonging to one constructionalisation path? Or more generally, how do different grammatical concepts, such as Construction Grammar, deal with IAV?
- How can IAV be examined in historical data? What conclusions do the findings allow for the study of language variation and change and historical linguistics (Havinga in this volume; Auer in this volume; Merten in this volume)?
- How can we use data collected for other linguistic purposes to examine IAV (Nickel in this volume; Auer in this volume)?

The interplay of theoretical, methodological and empirical questions offers a better understanding of the meaning of IAV for patterns of language variation and change. Therefore, fostering studies on IAV will contribute to expanding and renewing our understanding of language development, variation, and change, for example, of how variation at the micro and macro level interact. The individual studies of this volume offer insights into these questions.

3 Contributions of this volume

The empirical studies in this volume are preceded by Ulbrich and Werth's critical review of the literature on IAV. Based on this review, the authors propose a complex model allowing for a detailed analysis and classification of IAV. Central to this model is a differentiation into three types, namely non-conditioned IAV, conditioned IAV and functionalised IAV.

The major focus of the present volume is on the different ways in which IAV can be studied empirically. The structure of the contributions in this book is based, on the one hand, on the respective linguistic level (phonetic-phonological and syntactic-morphological dimension) and, on the other hand, on its diachronic reference (historical dimension). Within these dimensions, however, the chapters adopt very different theoretical and methodological approaches. Using the entire array of methods available to current research is one way of solving the conundrum around the notion of IAV.

Part I: Phonetic-phonological dimension

In the realm of second language acquisition, Ulbrich (in this volume) investigates the extent to which L2 proficiency level and interlocutor affect degree and type of phonetic accommodation. Employing a linear mixed effects regression model, her analysis of production data – obtained from 12 female native Spanish learners of L2 German recorded during a collaborative map-task – reveals considerable (socially motivated) intra-learner variation, which the author explains via an exemplar-based approach.

Fanta-Jende's contribution (in this volume) focuses on stylistic variation across the dialect-standard axis in Austria. Data are gathered in different settings displaying, for example, various degrees of formality such as formal interviews, informal conversation among friends, two translation tasks, and two reading tasks. The empirical focus of this study is on current reflexes of the phonological variable Middle High German *ei*.

Bülow et al. (in this volume) use sociolinguistic interviews including informal conversations as well as reading and translation tasks to explore both systematic and non-systematic variation in spoken Swiss Standard German. The empirical focus of their study is on the variables (k) and (ç), which are well-attested to vary not only at the level of the Swiss German speech community as a whole but also at the level of individual speakers within the community. Thus, the central aim of this study was to understand the linguistic, social, and individual factors constraining variation of the variables (k) and (ç) in the speech of 16 informants from one particular location (Biel).

Part II: Syntactic-morphological dimension

Nickel (in this volume) examines IAV in nominal inflection in data obtained in the research projects of the Bavarian Linguistic Atlas. Despite its research design of eliciting the traditional dialect, the author finds various instances of IAV. The study provides evidence for variation in the inventory of plural markers as well as inflectional morphology in the form of optimal plural marking. This not only improves our understanding of the nature of inflectional processes but also gives convincing evidence for IAV inside dialects.

Ellsäßer and Schallert (in this volume) use large corpus data from Upper German dialects to investigate IAV for two morphosyntactic phenomena: substitute infinitive constructions and word order variation in the verbal complex. Both phenomena show a high degree of non-conditioned variation in the data. Nevertheless, the authors argue that certain variants are not chosen arbitrarily but that there are co-occurrence restrictions between the variants. These co-occurrence restrictions are modeled using Stochastic Optimality Theory.

Entringer's study (in this volume) is concerned with morphological variation of the superlative and the adjectival participle in a relatively young and little-standardised Germanic language, namely Luxembourgish. As the author points out, Luxembourgish is characterised by a very high degree of variation, due to its comparatively low level of standardisation. By means of speech data from the crowdsourcing mobile application *Schnëssen*, the study explores inter-individual variation and its linguistic constraints as well as IAV.

Part III: Historical dimension

Taking a sociolinguistic/heritage linguistic perspective, Auer (in this volume) investigates the patterning of intra- and inter-individual variation in the speech of (second-, third-, and fourth-generation) Swiss heritage speakers in North America. The author's investigation of data obtained in a questionnaire translation task not only reveals which lexical, phonological, and morphological variables display the most IAV but also sheds light on processes like language maintenance and shift as well as possible dialect levelling in the diaspora under study.

Havinga (in this volume) continues with an empirical case study in the area of historical sociolinguistics by focusing on IAV in three nineteenth-century private letters, written by an Austrian maid to her sister. Language-internal and language-external factors are considered to explain IAV appearing both inside and between the letters on different linguistic levels: orthography, morphology, lexis, syntax, and punctuation. The author also discusses instances of non-conditioned IAV (cf. Ulbrich and Werth, in this volume).

Merten (in this volume) pleads for an integration of IAV into the field of diachronic Construction Grammar. Her study examines a corpus of Middle Low German codifications of land law. Merten shows that syntactic change in Middle Low German is gradual, which thus leads to the synchronic coexistence of related constructions of different ages. Thereby, lexical alternations show a stylistic dimension and highlight the social-symbolic significance of IAV.

Finally, Pröll's contribution (in this volume) deals with IAV from a theoretical perspective. His chapter is concerned with the question whether IAV generally indicates multilingualism. Speaker inherent variation is then variation occurring between two or more discrete systems. This question is discussed using German and its varieties as examples. This involves answering or rather addressing the following questions: how many native speakers does Standard German have? How many grammatical systems do these speakers have?

All the empirical studies outlined above take into account the complexity involved in studying IAV – and they all have in common that they focus on (a variety

of) German, for various reasons. As mentioned above, linguistic approaches explicitly neglect certain types of IAV both theoretically and methodologically. What is more, theorising IAV is well ahead of empirical investigations in linguistics. In order to fill this gap, it is important to keep the linguistic and cultural context as homogeneous as possible. Holding the target language constant allows us to study important relationships that hold between various linguistic processes, features, and forms and that are in line with the main premises of variationist theories.

4 Concluding remarks

We believe that empirical research on intra-individual variation in linguistic research is important for several reasons. Even if scholars do not explicitly adopt a dynamic systems or complexity framework, the overall emerging picture is that of a broad shift that has departed in several respects from traditionally established viewpoints. One of the most radical consequences of this paradigm shift has been the growing recognition that straightforward cause-effect relationships are no longer sufficient in themselves to explain all the complex patterns observed in language change, language use, and language acquisition. We thus argue that a focus on intra-individual variation in language ability has the potential to shed new light on longstanding theoretical debates in various linguistic fields and bring us closer to a detailed mechanistic understanding of human language.

References

- de Bot, Kees, Wander Lowie & Marjolijn Verspoor. 2007. A dynamic systems theory approach to second language acquisition. *Bilingualism: Language and Cognition* 10. 7–21.
- Bülow, Lars & Simone E. Pfenninger. 2021. Introduction: Reconciling approaches to intra-individual variation in psycholinguistics and variationist sociolinguistics. In: *Linguistics Vanguard* 7(s2), 1–10.
- Hernández-Campoy, Juan M. & Tamara García-Vidal. 2018. Style-shifting and accommodative competence in Late Middle English written correspondence: Putting Audience Design to the test of time. *Folia Linguistica Historica* 39(2). 383–420.
- Chambers, Jack K. & Peter Trudgill. 1998. *Dialectology*. 2. Ed. Cambridge: Cambridge University Press.
- Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge/Mass.: M.I.T.
- Drommel, Raimund H. 2016. *Sprachprofilung – Grundlagen und Fallanalysen zur Forensischen Linguistik*. Berlin: Frank & Timme.
- Gerstenberg, Annette & Anja Voeste. 2015. *Language development. The lifespan perspective*. Amsterdam: Benjamins.

- Harrington, Jonathan, Sallyanne Palethorpe & Catherine I. Watson. 2000. Does the Queen speak the Queen's English? *Nature* 408. 927–928.
- König, Werner. 2010. Investigating language in space: Methods and empirical standard. In Peter Auer & Jürgen E. Schmidt (eds.), *Language in space. An international handbook of linguistic variation. Vol. 1: Theories and Methods*, 494–511. Berlin: de Gruyter.
- Labov, William. 1972. *Sociolinguistic patterns*. Philadelphia: University of Pennsylvania Press.
- Labov, William. 1994. *Principles of linguistic change. Vol. 1: Internal factors*. Oxford: Blackwell.
- Larsen-Freeman, Diane & Lynne Cameron. 2008. *Complex systems and applied linguistics*. Oxford: Oxford University Press.
- Preston, Dennis R. 1996. Variationist perspectives on second language acquisition. In Robert Bayley & Dennis R. Preston (eds.), *Second language acquisition and linguistic variation*. Amsterdam: Benjamins, 1–45.
- Schiegg, Markus & Deborah Thorpe. 2017. Historical analyses of disordered handwriting: Perspectives on early 20th-century material from a German psychiatric hospital. *Written Communication* 34(1). 30–53.
- Schiegg, Markus. 2018. Factors of intra-speaker variation in nineteenth-century lower-class writing. In Anita Auer & Mikko Laitinen (eds.), *Neuphilologische Mitteilungen 119. Special Issue: Mobility, Variability and Changing Literacies in Modern Times*, 101–120.

Christiane Ulbrich and Alexander Werth

What Is Intra-individual Variation in Language?

Abstract: Empirical and experimental work has yielded burgeoning evidence of intra-individual variation drawing on a variety of analytical frameworks and methodological approaches. A systematic review of intra-individual variation is thus timely both to provide guidance for researchers wishing to interpret and understand intra-individual variation and to provide some theoretical and methodological resources to evaluate the rapidly growing body of literature on intra-individual variation. The present chapter thus untangles intra-individual variation both terminologically and conceptually. We survey the scholarly discussion and evaluation of intra-individual variation in the interdisciplinary discourse of theoretical linguistic frameworks and empirical studies. By sketching previous research, we systematise various types of intra-individual and derive the proposal for a model of intra-individual variation followed by some remarks about the application of intra-individual variation.

Keywords: types of IAV, terminological heterogeneity, methodological diversity, dynamics of IAV, application of IAV

1 Introduction

This volume tackles the question of intra-individual variation (IAV), encompassing the entire breadth of observable variation within individuals' behaviour, from various angles. The contributions deal with the range of IAV from small phonetic details to global textual aspects and from historical corpus linguistic perspectives to language development processing and representation.

Fundamental theoretical concepts are, at least in our view, rather problematic. For example, in sociolinguistics, intra-speaker variation is usually understood as equivalent to stylistic variation, which generally is assumed to be functionalised as opposed to inter-speaker variation referring to social differences between groups of speakers reflected in language in use (cf. Halliday 1978, Hernández-Campoy and Cutillas-Espinosa 2012). Approaches like that, we think, seem to simplify the complexity of the phenomenon and also reflect a rather field-specific terminology and methodology for the investigation of IAV. The aim of the chapter is hence to provide a comprehensive and interdisciplinary approach to IAV.

<https://doi.org/10.1515/9783110743036-002>

At present, there are several theoretical frameworks that are, at least partially, suitable to explain IAV. In our view, there are different perspectives particularly well suited to mirror the development of strategies for dealing with IAV. The preliminaries in Section 2 expound these strategies and outline issues relevant to IAV. Naturally, different theoretical frameworks feature their specific terminology and methods. We therefore aim to provide a systematic, cross-disciplinary terminology within a conceptual model of IAV in Section 3 and illustrate the different levels of the proposed model on the basis of previous research on IAV in Section 4. Section 5 subsequently demonstrates how the different levels of the model interact. Finally, the scope of application of IAV is covered in Section 6.

2 Preliminaries to IAV

In this section, we identify some general aspects of IAV, such as the physiological base and the time-dependency of IAV. We deal with terminological heterogeneity, the discourse of underresearched IAV and the resulting methodological diversity. We furthermore show that the scientific interest in IAV has continuously increased over the development from generative grammar to more usage-based theories.

To use language means to exhibit language variation caused by physiological properties relevant to speech production, perception and processing. Every single utterance is original and more or less differs from other utterances depending on several factors, such as the linguistic domain, rendering IAV a universal phenomenon (cf. Schilling-Estes 2002). On the articulatory and the acoustic level of speech production, no single utterance is exactly the same as another. Some aspects of IAV are due to gestural interactions of the articulators. These are highly complex, so that a simultaneous repetition of a particular speech gesture by humans is not possible. Similarly, the physiological part of speech perception appears to be comparably complex in that the same signal presented for instance in a perception experiment can evoke different perceptions in the same individual (see Section 4). Furthermore, IAV has a neuro-cognitive base, since brain structure is evidently associated with specific linguistic behavior (cf. Nobre and Plunkett 1997; Friederici et al. 2017). Considering language representation, as opposed to language use, the degree of permitted variation appears to depend on the theoretical framework. Exemplar-based theories (ET; Pierrehumbert 2001; Bybee 2013), for instance, are able to model all kinds of variation, whereas rule-based accounts, such as Optimality Theory (OT; Prince and Smolensky [1993] 2004), only include linguistically conditioned variation and propose redundancy-free representation.

Leaving the issue of mental representation aside, every linguistic model has to be able to accommodate language variation and to allow for its categorisation. The latter is necessary to ensure a mutual understanding between speaker and hearer (see below). In this context, it is crucial to differentiate between the dichotomies “variable” and “variability” versus “variant” and “variation”. Variability denotes the possibility of a linguistic unit or structure (i.e. the variable) varying and thus producing variation. The value a specific form can take (i.e. the variant that is produced or perceived) is largely conditioned or functionalised by linguistic or extralinguistic factors. The selection of a particular variant is most frequently not arbitrary but rather guided by co-occurrence restrictions, as reported by Blom and Gumperz ([1972] 2000: 118–119) in an example of Northern Norwegian Hemnesberget standard and dialect variation. They show that the choice of a particular morphological standard variant triggers the selection of a corresponding phonological variant. This interaction between levels of linguistics is not restricted to the morphology-phonology interface but applies to all other linguistic interfaces. This in turn results in clusters of variants that consequently constitute varieties (e.g. sociolects and dialects).

Another prerequisite of IAV is that it can only be observed over time (cf. de Bot and Bülow 2020). That means, in line with de Saussure’s linearity principle, it is not possible to have two simultaneously produced or perceived utterances. This implies a dissociation of research on IAV from research of interindividual variation (IEV) and makes it an independent research topic. Furthermore, it excludes the possibility of language as an ergodic system because it is not homogeneous and its development and change are non-linear (cf. de Bot et al. 2007; Lowie 2017). More precisely, Molenaar (2004: 217) states that “the structure of IAV is heterogeneous in time”, whereas IEV is not obligatorily time-dependent and that therefore the two types of variation are not comparable. He continues that “[i]t then is necessary to study the structure of IAV for its own sake, i.e. by means of dedicated time-series analysis” (Molenaar 2004: 217).

All of the above illustrates the complexity of the phenomenon IAV. The starting point of our argumentation, as mentioned above, is the lack of a framework specific to IAV. There is no coherent theoretical and methodological paradigm dedicated to IAV in a systematic way. Issues pertaining to IAV are usually discussed within individual linguistic disciplines such as historical linguistics, sociolinguistics and language development and others, leading to terminological overlaps and inaccuracies (for example the terms *register*, *repertoire*, *style* and *diaphasic variation* in different variationist linguistic approaches, see for discussion Biber and Conrad 2009; Hernández-Campoy 2016: 33–34).

Although IAV has frequently been described as an underresearched phenomenon in linguistics (cf. Singleton 2021 and Bülow and Pfenninger 2021 for

specific types of IAV), we have come across numerous works dealing with IAV, some simply providing evidence for its existence and others developing theoretical frameworks to account for IAV as a result of individual mostly extralinguistic factors. Examples from sociolinguistics are attention to speech, speaker design model, audience design model (see e.g. Schilling-Estes 2002 and Hernández-Campoy 2016 for review) and accommodation theory (Giles 1973; Giles et al. 1991).

2.1 Theoretical considerations

IAV has been investigated on different linguistic levels from phonetics or phonology to morphosyntax and pragmatics in consideration of paralinguistic and extralinguistic factors (cf. Auer 2015: 134). We will introduce some of these works in the following section.

There are approaches that explicitly neglect IAV both theoretically and methodologically or limit IAV to alternations between different grammars. Universal grammar accounts in the Chomskyan tradition, for example, are generally based on the assumption of an ideal speaker-hearer competence in language unaffected by factors such as “memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance” (Chomsky 1965: 3). The focus of such rule-based approaches is on the establishment of a speaker-unspecified universal system with a deliberate exclusion of IAV. This has often been done through focusing on grammatical core components by means of introspection. Results obtained in the analysis of the individuals’ competence is used to draw conclusions about the competence of a linguistic community. The central goal of approaches associated with this theoretical framework is the generalisation across individuals in order to model a universal grammar.¹ Furthermore, these approaches are driven by the paradigm of maximal economy of the language system and uniformity across languages, thereby minimising variation (see for discussion Adger and Smith 2005). This becomes apparent for instance in a syntax that is grounded in basic grammatical operations or in phonology in the

¹ Note that early morpheme acquisition studies within Universal Grammar found and acknowledged IAV but neglected such data in pursuing the central goal of generalisation (cf. Rosansky 1976). However, especially in investigations of interlanguages, IAV has been part of a controversial but not very conclusive discussion owing to the lack of experimental and statistical resources (cf. Tarone 1982).

concept of underspecification, i.e. the assumption of an underlying representation prohibiting non-distinctive, predictable features.

There are some phenomena that a priori relate to IAV, for instance code-switching. The voluntary or involuntary parallel use of variants from two varieties or languages is by definition IAV. Furthermore, in studies that deal with aspects of development in language and speech production and perception focusing on individuals, IAV is a central topic. This seems to be the result of a general paradigm change in linguistic theory from more competence-oriented frameworks such as the above-mentioned universal grammar (cf. Chomsky 1965; McCarthy 2003) to more usage-based approaches (cf. Tomasello 2008). The central aim in usage-based approaches is the detailed description of speaker- and listener-specific variants, more explicitly, the differentiation and detailed observations of speech events as opposed to generalisation. The structure of a language is seen to emerge from language use, whereby individuals rely on general cognitive skills. Nonetheless, the two approaches aim at the categorisation of variants. They differ in that classical theorems of universal grammar emphasise the establishment of abstract discrete categories, whereas in usage-based models categories are less sharply defined and more gradient because they result from the complex interaction of indexicalised tokens, hence the concrete realisation of variants.

In classical dialectology, with its concept of the representative informant standing for a single variety (NORM, standing for “nonmobile, older, rural-male”; cf. Chambers and Trudgill 1998: 29), IEV took precedence above observable IAV. At the same time, sociolinguists concerned with linguistic variability, focused on mean differences across individuals and thereby obscured the variability in the performance of the individual. Sociolinguists rather “consider intraspeaker variation to be evidence of inherent variability in a communal grammar” (Meyerhoff 2006: 37). Forms that are selected by individuals constitute speaker identities depending on the context in which the conversation takes place. Note that variationist theories focus on situational and social aspects, in other words extralinguistic factors that determine IAV. These variants can be associated with respective indexical meaning (cf. e.g. Silverstein 2003). Early studies in the Labovian tradition (for a review, see Chambers 2003) have already shown that individuals unconsciously or consciously select speech forms depending on situational, contextual, and social factors. In variationist linguistics, these indices entail social, situational and contextual factors and are so far mainly focused on the speaker’s rather than the listener’s IAV. This is reflected in the term “intra-speaker variation” (see Section 4). One noticeable exception in socio-phonetics is Ohala’s (1981) reflections on sound change as initiated by the listener. The author describes three possible scenarios for a listener’s intra-individual behavior that

may (or may not) alter her individual representation of sounds and thereby may (or may not) lead to sound change.

IAV as a research object is approached differently in the subdisciplines of linguistics. In research concerning style and register competence, IAV is usually determined by aspects of social and educational background. In the literature, the “Möglichkeitsraum” (Macha 2005: 14), i.e. the spectrum of intra-individual variability of one single speaker, is labelled “idiolect” as oppose to “sociolect”, “dialect” and further “-lects” which refer to “cluster[s] of similar (mutually intelligible) idiolects” (Hernández-Campoy 2016: 37). In consequence, the “Möglichkeitsraum” of a speech community will always exceed that of an individual.

The acknowledgment of IAV implies that the language system cannot be investigated without consideration of language use leading to a variable, dynamic and emergent language system as proposed by usage-based models mentioned above (cf. Bybee and Beckner 2010). The central idea of language development has already been dealt with by Hermann Paul, member of the neo-grammarians school. He already explains sound change on the basis of IAV using the image of a shooter whose two shots never exactly hit the same target (cf. Paul [1880] 1975: 55–56). And even though the deviance between the two hits may not be noticed it may still lead to a shift of the target (see the concept of the invisible hand in Keller 1994).

This is in line with exemplar theory (ET), where categories are flexible, dynamic representations, memorised tokens, ‘exemplars’ (cf. Pierrehumbert 2001; Johnson 2006). The useful assumption that each of these can belong to several fluid categories at the same time, i.e. also cognitive phenomena outside the linguistic system, is the foundation of the dynamism and thereby IAV, which in addition, is inherently variable in terms of its degree and its occurrence of individual linguistic levels. In order to account for the affiliation of individual variants to various categories ET employs indexicalisation comparable to the practice of variationists (see above). Flexible constraints evaluate the fit of new input tokens to previously memorised tokens. Domain-general cognitive processes permanently update and restructure the category system as a whole, and individual categories accumulate, merge, and split so that the generation of output can be the result of distributional shifts. Indexicalisation is not only limited to the selection of specific variants but to variability per se.

In the light of these considerations, variability has become increasingly more important in studies of language development and acquisition. In this context, Van Geert (1994), Larsen-Freeman (1997) and De Bot et al. (2007) argue that variability is meaningful because it is an indication of developmental patterns within a user’s language system, i.e. a change in the learner’s mind. It is not merely attributable to contextual and environmental factors (see Section 6), a view that is “too

simplistic and too linear”, as emphasised by de Groot (2012: 6).² IAV rather results from the interaction of an individual “with the environment that leads to variability and change within the system” (de Groot 2012: 6), and it is necessary for the learner in the exploration of the language system and its optionality (cf. Thelen and Smith 1994).

The linguistic development of the individual is central to Complex Dynamic System Theory (CDST; Larsen-Freeman and Cameron 2008; Lewis 2011; Toffoli 2020). The aim is to model and to understand the complexity of dynamic processes that are due to the interaction of linguistic subsystems like phonology, morphology and semantics under the influences of patterns of language use and system-internal factors. The iterative and interconnected interaction between the building blocks of the language system and the external and internal factors result in a non-linear dynamic and adaptive system that is emergent and largely unpredictable. Changes within one subsystem can be triggers for changes in one or more other subsystems and thereby affect the entire linguistic system. Patterns of language use such as language contact, implicit or explicit learning, exposure as well as internal factors such as motivation, attention, proficiency, attitude, aptitude lead to functionalised IAV. As mentioned above, in ET, categories are flexible representations or memorised tokens that are equipped with indices. Due to the indexicalisation, they can belong to several categories including cognitive phenomena outside the linguistic system. That in turn renders the categories fluid, providing the foundation of the dynamism and hence IAV. Flexible constraints evaluate the fit of new input tokens to memorised tokens, and domain-general cognitive processes permanently update and restructure the category system as a whole. Individual categories can hence accumulate, merge or split and generate outputs resulting from distributional shifts leading to observable IAV within all of the postulated domains.

Indexicalisation is not only limited to the selection of specific variants but also to variability per se. De Weerth et al. (1999), for instance, have found that infants use variability of expressions (verbal and physical) for seeking maternal attention, without a one-to-one-mapping of a specific expression to a specific function. Experimental studies, at least in the past few decades, have reported on IAV as a result of different linguistic contexts, experimental task or brain structure (e.g. Thomas et al. 1997; Phillips et al. 2004; Fagot et al. 2018). It seems natural that these factors interact.

² CDST distinguishes different types of variability. However, there are significant developmental jumps pertaining to specific linguistic variables indicating the progression in a particular area of linguistics and there is a more general variability indicating overall progression (cf. Lowie and Verspoor 2019).

Contrary to the CDST's view concerning unpredictability and non-linearity of linguistic systems, grammaticalization theory is a teleological model of language change. Within grammaticalization theory a cycle of grammaticalization is conceivable from non-systematic IAV to more linguistically determined IAV, which then can become functionalised depending on factors such as token- and type-frequency and the generalisation of the linguistic context. Subsequently, a frequently used and increasingly widespread functionalised variant can become mandatory. This in turn implies decreasing variability, which can only be balanced through an increasing number of variants so that the cycle starts again (the distinction between the different types of IAV play a significant role in our model presented in Section 3). Considering the concept of layering (cf. Hopper 1991), this also means that “old” and “new” variants occur simultaneously at a particular point in time and thereby lead to IAV.

A combination between such teleological and more non-linear approaches to IAV is the current interpretation of the accommodation theory, which originally was embedded within variationist theories (cf. Giles 1973) and has recently been adopted to also explain aspects of cognitive representations (cf. Tobin et al. 2017). IAV in this model is explained by alignment or disalignment of competence and thus not limited to the speaker perspective because it emphasises the interactional aspects of communication by including the listener. The well-established distinction between short term- and long term-accommodation determines IAV in different ways. Loosely speaking, short-term accommodation evokes most likely more non-conditioned IAV and extralinguistically functionalised IAV. Long-term accommodation on the other hand leads to a stronger co-textual and contextual relationship of IAV because the establishment of linguistic rules is more likely to depend on long-term effects. The same holds for the development of mandatory forms.

2.2 Methodological aspects

The different foci of the theoretical approaches also entail differences in the methodological procedures. In research into IAV, it is important to distinguish between the description of IAV, as emphasised in usage-based models for example, and the controlled elicitation of IAV. In other words, an experimental design can be used to elicit IAV, whereas IAV in corpora is most likely accidental and depends on the corpus size. In larger corpora, IAV occurs more frequently, and more variants are likely to be found as compared to the case of small corpora. Both experimental elicitation and corpus-based research of IAV are problematic. In corpora, there is comparably less control of specific IAV phenomena and the factors triggering IAV. Note, though, that the corpus can be designed in order to allow for

the investigation of IAV (cf. Schiegg's corpus of patient letters; Schiegg 2018). For some linguistic phenomena, however, tokens may occur very seldom. An experimental design allows for the elicitation of specific tokens of IAV but it entails the problem of the observer's paradox and IAV is hypothesis-based.

Some methods of data elicitation are more suited for the investigation of IAV than others. Cross-sectional studies are mainly apparent-time studies focusing on the quantitative comparison of different groups, often within the same speech community. Crucially, such quantitative data are obtained at a specific moment in time, so that they allow for generalisations across different groups and hence are more suited to describe IEV. Problematic is the common practice of averaging data points of a single instance per person (see crosslinguistic studies in general). Given observable fluctuations of varying degrees, the performance assessed from a single occasion can be neither accurate nor representative. Standard methods try to remedy this shortcoming through strict control of factors affecting linguistic performance. But only when the observable variability is small in generalisations derived from averaging across a group of individuals, mean-level differences can be used for the formulation of specific predictions. In early sociolinguistics research, a homogeneity assumption posits that socially similar speakers are also linguistically similar (cf. Romaine 1982: 11), which justifies focusing on IEV, not on IAV, within a quantitative paradigm. However, it is precisely these factors of social interaction and situational context introducing presumably both systematic as well as random sources of IAV.

Longitudinal studies and case studies of individual subjects are more consistent with the requirements of investigating IAV. They are real-time studies focusing on the detection of language change and development. Findings of cross-sectional studies usually result from averaging across individuals. However, the observation of IAV is possible only within one speaker or listener, allowing for a better understanding of different variables and their contribution to IAV. Case studies focus on IAV – by definition. A combination of quantitative data obtained in cross-sectional group studies with individual difference variables appears to be a promising approach for capturing IAV and still allowing for generalisation in relation to language development and change (cf. Pfenninger and Singleton 2016).

A final distinction has to be drawn between analytical procedures applied in research in respect of production, perception and processing of IAV. Apart from the fact that IAV has been documented more frequently in speech production and in the area of phonetics as compared to the other levels of linguistics, the actual experimental tools and designs vary depending on the type of data.

The points summarised above may be the reason for the lack of an IAV-specific research tradition, but also show that theoretical considerations and empirical evidence for IAV are not scarce. In light of the above considerations, we

will set out a multilayered/multifaceted model on IAV in the following section. Our model encompasses four domains of IAV. The actual shape of IAV will be shown to be determined by the interaction of multiple influencing factors.

3 A multilayered model of IAV

In this section, we provide a model allowing for a detailed analysis and classification of IAV. In contrast to the concept of “repertoire” used in several variationist linguistic studies since Gumperz (1964), our model is not restricted to the functional dimension of language variation but encompasses all possible dimensions of IAV, i.e. free, formal and functional variation. In line with the concept of “repertoire”, however, we assume that the “Möglichkeitsraum” is structured in several dimensions, as detailed in the following.

Our model consists of four levels. We distinguish three domains for IAV: non-conditioned, conditioned, and functionalised, dealing with facets of IAV. One level excludes variation and thereby provides the base line for comparison (see Figure 1).

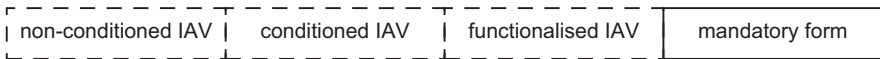


Figure 1: Domains for the classification of intra-individual variation (IAV).

3.1 Non-conditioned IAV

This type of variation comprises observable variation that occurs under maximally similar conditions; i.e. all else being equal, a speaker will produce a range of variants that cannot be attributed to social, situational or psychological factors considered extra-linguistic, nor by factors inherent to the linguistic system such as phonotactics, morphological conditions or syntactic restrictions. We will refer to this kind of variation as IAV “in the narrow sense”. Crucially, as mentioned above, time is a factor inextricable from the analysis of IAV. In other words, time is a confound in the analysis of IAV.

The assumption of this kind of variation contradicts the principle of no-synonymy postulated by Bolinger (1968: 127) for the interaction of syntax and meaning: “A difference in syntactic form always spells a difference in meaning”. Harris (1970: 786) generalises including all linguistic domains: “[D]ifference of meaning correlates with difference of distribution”. This corresponds also to the

tradition that “free variation does not exist because linguistic variation is not free at all, but rather constrained by social and/or situational factors” (Hernández-Campoy 2016: 69 with reference to e.g. Labov’s studies). Other scholars, however, particularly those dealing with intra-learner and intra-speaker variation in language development and change describe variation that cannot be attributed to either linguistic or extralinguistic factors. It is thus conceived as “unsystematic variation” (Tarone 1982) or “non-systematic variability” (R. Ellis 1985), “free variation” (R. Ellis 1999), “performance variability” (R. Ellis 1985) or “random variation” (Singleton *forthc.*),³ and “fluctuations” (e.g. Labov 1966; Chambers 2003: 13–14; van Geert and van Dijk 2002). Such non-conditioned variation, in our sense, hence includes slips of the tongue, false starts, and changes of mind as long as they are not meaningful.

We claim that not every observable IAV has to be functionalised or conditioned, emphasising the possibility of IAV without identification of any conditioning factor carefully mentioned also in Bülow et al. (2019: 98). We are aware that this claim is hard to verify and thus hypothetical. Nonetheless, the opposite, i.e. the evidence for the exclusivity of functionalised or conditioned and thereby the neglect of unconditioned IAV is equally hard to demonstrate.

3.2 Conditioned IAV

This domain includes the selection of variants based on linguistic context. More precisely, the selection is obligatorily, hence unambiguously predictable and based on the formal grammatical environment. As opposed to non-conditioned IAV, variation in this sense is systematic (R. Ellis 1992). In phonology, this corresponds to combinatory variants and phonotactic constraints. For example, Dutch and German feature a phonotactic constraint prohibiting the occurrence of non-low short lax vowels in the nucleus of open syllables (cf. Hall 1999). Another example is morphologically conditioned allomorphy, i.e. the selection of the plural suffix *-en* following the two noun forming suffixes *-heit* and *-keit* in German.

3.3 Functionalised IAV

We base the domain of functionalised IAV on a very broad definition. In contrast to variationist approaches, which consider IAV to be the result of social,

³ Considering IAV in the context of CDST, these terms are not randomly used but refer to specific concepts of IAV in learner languages.

stylistic or situational, i.e. extralinguistic factors, we assign both linguistically and extralinguistically meaningful variants to the domain of functionalised IAV. We subsume factors such as age, region, class, gender, mode, medium, purpose, attitude, motivation, physical state under the label of extralinguistic. Functionalised linguistic IAV encompasses variation on the semantic and/or pragmatic level (note that pragmatics always depends on context, cf. Meibauer 2012). Conditioned IAV, on the other hand, is reserved for formal grammatical co-occurrences. In addition, we claim that functionalised variants are indexicalised in the sense of Silverstein (2003). That is, linguistic variables can be associated with indexical meaning in different dimensions, including for example socio-demographic identities, native ideologies and style. The concept of indexicalisation allows us to differentiate between the two domains of conditioned and functionalised linguistic IAV. Functionalised IAV is hence connected to Saussure's theory of sign.

Given the differentiation of the three domains of IAV, we conclude that not every instance of observable IAV has to have a function or a condition per se. At the same time though, we do not exclude the possibility that many or even most instances of IAV are predictable. This only means that the factors and conditions allowing for prediction may simply not be known yet in some instances of IAV. However, our model still allows room for the possibility of non-predictable, hence non-conditioned IAV ("IAV in a narrow sense").

3.4 Mandatory forms

Our model includes a domain for forms that do not allow for any kind of IAV. We hypothesise this domain to comprise linguistic units and structures that are restricted to one possibility only by mental representation. In other words, in such forms there is a correspondence between mental representation and output, and the use of another form more or less violates predictions or expectations. We assume this category to be restricted to the core linguistic levels of analysis (e.g. constraints in phonology on word stress, in syntax on transitivity and in morphology on derivational affixation).

The only possibility that could be considered IAV in this category are performance errors. However, it seems hard to differentiate between non-conditioned IAV and errors. Best suited for such a differentiation appears to be consideration of rules as well as the conscious reception of the variant: errors are unintended violations of rules that speakers and listeners are generally aware of (see for examples Garman 1990: 151–171). Furthermore, mandatory forms have to be distinguished from conditioned IAV because the latter imply a choice of variants, whereas for mandatory forms there are no alternatives, they lack variability.

Consequently, lack of variability means a one-to-one relationship between form and meaning/function. This particular relationship is restricted to the individual levels of linguistics; that means that every linguistic level has its own mandatory forms. Particular mandatory forms, however, can be variable on other linguistic levels. For example, verb-complement structures are mandatory at the syntax-semantic-interface, in that the valence of the verb determines the number and the syntactic function of the complements. On the lexical level, however, the argument slots can be occupied by different lexemes, creating room for lexical variability.

3.5 Determining factors of IAV

The four domains of IAV introduced in the previous section are further specified by several criteria to be detailed in the following and summarised in Table 1.

Correspondence of IAV and IEV: For the non-conditioned and the conditioned domain, we cannot assume correspondence between IAV and IEV because an individual does not possess the full range of variability of the respective linguistic community (cf. Biber and Conrad 2009: 24). A partial and substantial overlap between IAV and IEV, however, is inevitable because communication can only take place when speaker/writer and listener/reader share linguistic signs in the respective communication situation. In other words, IAV and IEV share the same variants (cf. Milroy and Gordon 2003: 200), whereby the speakers' inventory of IAV will always be smaller than the inventory of IEV of a specific speech community. That means there is an asymmetric relationship between IEV and IAV, in that lack of IEV means lack of IAV but not the other way around; i.e. IEV is still possible without IAV. The quality and the characteristics of the inventory of IAV is speaker-specific and heavily depends on social factors like income, education, gender, sex, ethnicity, age or race, on stylistic factors such as language production mode and situation, as well as on linguistic level (lexicon, grammar, pronunciation).

Extralinguistically and/or linguistically meaningful: This criterion is only relevant in the context of functionalised IAV. Variants can be functionalised both extralinguistically and linguistically, as already discussed above. Non-conditioned and conditioned IAV is by definition not functionalised; the mandatory condition does not allow for variation at all.

Intentional: This criterion also plays a role only when considering functionalised IAV, in that speakers/writers use specific variants in order to project an image

suited for an identity they wish to portray. In the non-conditioned category, the use of different variants is not intentional but random and the selection of conditioned variants is determined by rules, hence independent of intention, except for the requirement of accuracy.

Accuracy: Accuracy refers to variants that are rule-based and/or norm-compliant. For non-conditioned IAV this criterion is largely irrelevant. However, if a speaker/writer continuously uses random non-conditioned variants, production may become incomprehensible which might be sanctioned by the hearer/reader. An extensive use of non-conditioned variation has negative connotations in the speech community because it is associated with an incomplete linguistic system, as observed for example in first and second language acquisition (FLA and SLA), language attrition and language loss. Conditioned IAV is determined by the grammar; thus, violations of grammatical co-occurrences lead inevitably to inaccuracies. On the basis of Watzlawick's postulate that it is impossible not to communicate, every functionalised IAV has to be interpreted and hence is accurate, even if it is incomprehensible. For the mandatory domain, accuracy is inherent.

Frequency: Our model includes frequency as an IAV-related factor. We claim that non-conditioned IAV is strongly determined by frequency because the more frequent a token, the easier its activation for speech production and perception. The frequency of a variant and the co-occurrence of two or more variants is also relevant for conditioned IAV, in that variants that are often produced together presuppose each other (see the concept of entrenchment in Cognitive Linguistics). Considering functionalisation, both frequent and rare tokens can be meaningful. The indexicalisation of rare variants heavily depends on the linguistic or extralinguistic context, whereas frequent variants are more likely to be generalised and thus less dependent on specific contexts, as for example is modelled in theories of grammaticalisation (cf. Lehmann 2015). At the end of language change or grammaticalization in particular, a selection process takes place and, usually, the most frequent variants prevail and become mandatory.

Appropriateness: *Appropriateness* is associated with variants that are evaluated outside grammatical norms, which does not imply, however, that they have to be ungrammatical. Ungrammaticality is hence optional and not linguistically functionalised. *Appropriateness* is reserved for extralinguistically functionalised variants, for example, teenage slang. Non-conditioned, conditioned and mandatory variants are not evaluated in consideration of any type of extralinguistic parameter.

Consciousness: By *consciousness* we refer to speaker-dependent attention to linguistic variation. We claim that a speaker unconsciously selects non-conditioned variants. If she had an awareness for non-conditioned variation, she would suppress it, for example, in situations where the observer's paradox matters. More specifically, non-conditioned IAV will most frequently be found in utterances the speaker produces with the least amount of attention to the way of speaking/writing ("The Vernacular Principle", Labov 1972: 112). Awareness in relation to conditioned variation depends on linguistic knowledge, i.e. variants predictable on the basis of the grammatical system of a specific language. Functionalised IAV, however, is largely determined by stylistic knowledge or the scope of the individual's repertoire.

Time-dependent: As mentioned above, variation in general is largely time-dependent. However, time-dependency here refers to time as a factor responsible for variation. Non-conditioned variants are optionally time-dependent; e.g. variants realised in the morning may or may not differ from those produced later in the day. In the functionalised condition, time can be meaningful for example in short-term or long-term language change and development. Conditioned variants and mandatory forms are independent of the factor time because they are determined by the grammar of a language/variety.

Table 1: Domains and parameter of a dynamic model of IAV.

	non-conditioned	conditioned	functionalised	mandatory
correspondence of IAV and IEV	no	no	yes	irrelevant
extralinguistically and/or linguistically meaningful	irrelevant	irrelevant	relevant	irrelevant
intentional	no	no	yes	irrelevant
orientation to the audience	no	no	yes	irrelevant
accuracy	irrelevant	relevant	irrelevant	relevant
frequency	yes	yes	yes	yes
appropriateness	irrelevant	irrelevant	relevant	irrelevant
consciousness	no	yes/no	yes/no	irrelevant
time-dependent	yes/no	no	yes/no	irrelevant

Note that some linguistic phenomena cannot be attributed to one single factor, as for instance hypercorrection. It is conditioned by linguistic cotext and determined by extralinguistic factors, in that a speaker selects a variant she assumes to belong to a socially high-prestige repertoire of a particular speech community in

order to gain social acceptance (cf. Labov 1966; Herrgen 1986). We provide a more detailed description of possible interactions between the factors in Section 5.

The degree of observable IAV varies both in dependence on our four domains of IAV as well as on the eight influencing factors. For the description of the influence, we envisage an hourglass-shape as illustrated in Figure 2. According to that, variability is largest on the level of phonetics, i.e. articulation, and on the level of pragmatics or semantics. It is considerably smaller in the core components of language, i.e. in phonology, morphology and syntax. Note, that a more fine-grained differentiation of the variability of the core components is highly language-specific because the complexity of the individual levels of linguistics varies considerably between languages and even varieties.

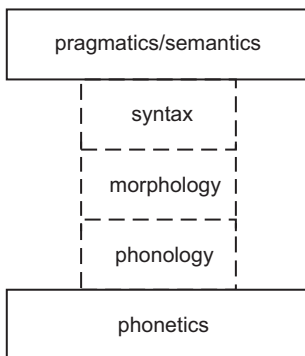


Figure 2: Degree of IAV on levels of linguistics.

4 Research concerning our model

In this section, we discuss some exemplary studies that explicitly address the factors that we included in our model of IAV. It is not our aim to provide an exhaustive overview of work on IAV. We present selected studies from different linguistic fields and linguistic levels; however, some disciplines like variationist linguistics and phonetics are overrepresented because most research has been done within these two subfields.

4.1 Non-conditioned IAV

Correspondence of IAV and IEV: In a study concerning lateral-vowel-sequences, Zhang et al. (2006) examined the relationship between IAV and IEV. Central fre-

quencies of the first four formants were analysed in the production of ten Standard Chinese speakers. Based on the Euclidean Distance, IAV was shown to be smaller than IEV at least under the laboratory condition of the study. In other words, in the study, the phonetic context was kept constant but IAV was still observed.

Intentional: In a study by Bayles et al. (2016) interview data of 47 speakers were examined to find out whether one or a combination of linguistic conditions, discourse type, word-size and position in the word as well as left- and right-hand context, is responsible for individually variable production of schwa. In addition, the study's aim was to figure out frequency dependency of variable schwa production. The authors found IAV in all analysed contexts, indicating that none of the contexts triggers the omission or the production of schwa, with the exception of the CC_C context, in which they found omission to be prohibited. The authors argue that in this context, the production of schwa is mandatory. This observation led to the assumption that "some phonotactic and discourse-level conditions (and perhaps other factors not examined here) can discourage or perhaps even rule out variation" (Bayles et al. 2016: 22). Given the fact that individuals were recorded in comparable situations, one could claim that no intention triggers the selection of either variant. Frequency of occurrence in schwa omission or realisation also varies between the individual speakers analysed, a finding with far-reaching theoretical implications. Models or theories that generate output variation based on multiple speakers and/or productions of individual tokens across multiple linguistic contexts run the risk of producing a grammar that does not reflect any actual speaker's grammar.

Another example of non-intentional IAV crops up in a study of the suitability of acoustic vowel characteristics for speaker identification by Kahn et al. (2011). They analysed over 300.000 exemplars of French vowels. In this applied context it is important to take non-intentionality for granted to capture the extent of a naturalistically produced range of IAV. The phonetic analysis revealed large inter- and intra-speaker variability that could not be explained by co-articulation effects or other acoustic cues such as F0.

Orientation to the audience: Non-conditioned IAV with this specific audience design comprises all studies showing IAV independent of individual or groups of listeners. This type of IAV can be found in all types of sociolinguistic research that include audience design as a dependent variable. Note that most of these studies investigate a linguistic variable that can be shown to be an intentionally and/or consciously selected variant according to a particular audience. This variant then is functionalised according to our model (see below).

Frequency: Frequency-effects in the production of non-conditioned IAV are reported in MacKenzie's (2017) study of /r/-realisations in Sir David Attenborough's speech. Contrary to a general tendency within the speech community, Attenborough retains [r] as an allophone for /ɹ/. More specifically, he increases the rate of [r] in high-frequency collocations with advancing age. The selection of the tap was not found to depend on the phonetic environment or other linguistic cotextual factors; neither was it triggered by extralinguistic factors. The collocations were assumed to become increasingly more word-like supporting a dynamic phonological representation (see for discussion Section 5).

Consciousness: A good example of unconscious non-conditioned IAV is the oddball-paradigm in neurolinguistics. This specific methodology aims for the processing of highly variable phonetic input stimuli. A series of acoustic stimuli with very small phonetic differences is interrupted by a phonetically entirely deviant element (frequently even by a phonologically different item), which evokes a more significant response than the difference between two of the phonetically more similar stimuli. Note, thus, that even those evoke IAV in the neural response (cf. Werth et al. 2018).

Cases of doubt are a typical example for non-conditioned conscious IAV. They refer to situations in which individuals are in doubt about the selection of one of two variants. Usually the individual is aware of the availability of commonly two or more variants. Cases of doubt are described, for example, in Langlotz and Stark (2019). In a dialogical introspection of two subjects, insecurity regarding the punctuation before a causal prepositional phrase within the pre-field is apparent, indicating that the subjects are aware of the existence of two possibilities.

Time-dependent: In an analysis of the Queen's annual Christmas broadcasts at various times between 1952 and 2002, Harrington (2007) found differences in the vowel realisation of /u/ and /æ/ in that /u/ was fronted by raising F2 and /æ/ was lowered by raising F1. A more relaxed speaking style as a trigger for these processes was rejected based on the observation that there was no reduction of the vowel space as an expression of hypo-articulation or undershoot. Furthermore, the phonetic environment could not be made accountable for these processes, since the broadcast follows a fairly strict standard procedure. This non-conditioned vowel shift did not only take place within the same individual, i.e. the Queen, but also within the entire RP-speech community.

4.2 Conditioned IAV

Correspondence of IAV and IEV: Gender errors of advanced French learners have been investigated by Dewaele and Véronique (2001). They found that IAV and IEV involve different generalisations and avoidance strategies influencing the accuracy of gender assignment and gender agreement. One third of the errors is attributed to free variation and hence in our understanding corresponds to the domain of non-conditioned variation in the proposed model. Crucially, according to the authors, both IAV and IEV depend on differences in the storage of lexical entries in the mental lexicon. This assumption is based on the proposal that non-native speakers have to learn or memorise the specific gender feature of lexical entries individually. According to our model, variation that occurs due to erroneous gender assignment is interpreted as conditioned variation since it is licensed by the mental lexicon. Observed IEV in the data will naturally be larger than the IAV, since it comprises errors made by all subjects investigated. In other words, it seems unlikely that individual speakers produce all errors observed in a speech sample of the entire speech community investigated.

Intentional: IAV has been found in the realisation of fundamental frequency (f_0). Elman (1981) provides evidence for the fact that variation occurs as a result of feedback condition. Individuals producing /a/ in Japanese were found to change their f_0 after hearing altered feedback without being aware of the manipulation. The fluctuations in f_0 were identified as response to feedback shifts and not as natural f_0 variation (cf. Coleman and Markham 1991). Corrective responses to f_0 alternation, thus the switching back to habitual f_0 , was found to occur quickly, with latencies of only 100–200 ms. This variation can be interpreted as short-term accommodation to an auditory stimulus as can be found for instance in the Lombard effect (cf. Garnier and Henrich 2014). Similar effects have been found in Sancier and Fowler (1997), though documenting more long-term accommodation effects. In a case study, they showed VOT-drifts in Brazilian Portuguese and American English depending on an individuals' ambient language.

Orientation to the audience: Morrison (2005) carried out a quantitative analysis of the pronunciation of English /ð/ by the Franconian-Canadian Prime Minister Jean Chrétien. Two realisations were found, the fricative [ð] and the plosive [d] as perceived by native Anglophones. The realisation was significantly dependent on the social settings, in that fricative realisations were more frequently attested in television interviews as compared to speeches in the House of Commons. Morrison interprets the difference in fricative realisation as a task-dependent effect because the speeches were read aloud, which, according to the author, has a negative impact on the pronunciation of non-native speakers. The data also revealed

conditioned IAV. The two observed variants were found in both utterance-types, just not with a comparable distribution. Regardless of the social setting, the respective realisation was reported to depend on the cotext; i.e. the preceding segment contributed to aspects of articulatory facilitation. Preceding fricatives led to the production of the fricative [ð] whereas [d] was realised following voiceless plosives.

Accuracy: Every grammatical rule implying one-to-one mapping of linguistic variants depending on respective linguistic environments provides a good example for this factor. For instance, the *ach/ich*-alternation in contemporary Standard German is entirely predictable by the phonological context (cf. Robinson 2001). Every deviation is perceived as an error.

Frequency: Conditioned frequency effects have been demonstrated by Yao (2011). She investigated phonetic realisation depending on neighborhood density. Her findings suggest that words with high-frequency neighbors facilitate lexical access leading to phonetic reduction and to more dispersed vowels. This process was interpreted as a speaker-oriented strategy that allows for synchrony between speech planning and execution.

Consciousness: In a neurolinguistic study by Brennan and Federmeier (2017) behavioral and neural IAV was investigated. Self-paced reading time and electrophysiological-relational-potentials were examined in sentences with varying semantic contextual constraints, affecting the expectancy of the sentence final target word. The semantic constraints provide the linguistic condition for critical items. Reaction time and neural response are two measures that are not consciously controllable, at least in a task eliciting fastest reaction times. Neural responses, in particular the N400, differed in response to intra-individual RT-variability. The results indicate that unconscious processing components (RT and ERP) are the result of deliberate control in reading.

Conditioned IAV, however, can also be conscious, as suggested by the results of Rieger's (2003) study of repetitions as self-repair strategies in English and German. In her analysis of conversational data, she examined repetitions as only one strategy of self-repairs in respect of, for example, personal and demonstrative pronouns, conjunctions, pronoun-verb-combinations and definite and indefinite articles, as well as of prepositions. She also found that the strategies vary according to the structural requirements of the respective language. English, for instance, uses more prepositions; hence, prepositions are significantly more frequently recycled in the English data as compared to the German data.

Time-dependent: Jensen (2017) studied the use of generic *du* ('you') as a competitor for *man* ('one') in Danish across a younger and an older population providing evidence for IAV across the life span of individuals, a change led by young Copen-

hageners. However, these results were derived from two recordings at different times (1980 and 2000). Furthermore, a subsequent more short-term analysis of conversations that take place shortly after each other and even of individual conversations confirmed variable use of *du* and *man* in both contexts. A statistical analysis revealed that the previous pronoun as well as its distance explain the variation. The author made one crucial comment. Due to the observation that not all individuals show the same kind of variable use, he suggests that the initial finding of lifespan changes may possibly be simply a reflection of variable synchronous use of the two variants at two points of time. This has implications for methodological approaches to the study of generally time-dependent IAV, in that only continuous data collection allows for an analysis of true language development and change (see Molenaar's 2004 suggestion of studying IAV in time series above).

4.3 Functionalised IAV

Correspondence of IEV and IAV: Correspondence of IEV and IAV can be illustrated with the example of Labov's (1966) classic sociolinguistic study of postvocalic /r/-realisation in New York City. Variation was found to be triggered by social background (i.e. class) and situation. The feature of /r/-vocalisation in postvocalic position varied depending on the social class (Middle class, Working class, Lower class), utterance style (casual style, formal style) and task (reading passage, word list, minimal pairs). The more prestigious form of vocalised /r/ was generally found more in the formal style than in the casual style. Most frequently, vocalised /r/ was found in minimal pairs, to a lesser degree in word lists and least frequently in reading passages (cf. Labov 1966: 141). Hence, IAV, observable depending on formality and task, corresponds to the IEV found in the degree of /r/-vocalisation across subjects of all social backgrounds.

Extralinguistically or linguistically meaningful: Bülow et al. (2019) investigated four plural verb paradigms in various regional varieties of Austrian. Speech samples were obtained in interviews and dialect questionnaires from the same informants at different times (2003/2004 vs. 2016/2017). Both IAV and IEV in the investigated allomorphy were found, on which grounds the authors rejected the ergodicity hypotheses. Furthermore, extra-linguistic factors such as age, region, profession and mobility explained the variation in the data and hence were meaningful. Linguistic factors could not account for the observed IAV and IEV. It thus follows that IAV has to be taken into account to derive generalisations on the group levels.

Extralinguistic factors associated with IAV have also been observed in van Compernelle and Williams's (2009) investigation of French interrogative struc-

tures and the use of formal *nous* ('we') and informal *on* ('we') in SLA. The results show that individuals' choice of a more formal or a more informal variant is influenced by verb type and grammatical subject. However, only those subjects with more exposure to native French, both in natural conversation and in the French media, show more flexibility in the realisation of the formal and informal variants. The authors interpret the findings as a result of sociolinguistic competence.

In contrast, Kurumada et al. (2012) found IAV in listeners' behavior that appears to be clearly linguistically functionalised. In a visual world paradigm, they showed that listeners are able to adapt to speaker-specific prosodic cues employed in a distinction between noun- and verb-focused utterances. In addition, they showed an adaptation effect in that they adjusted their classification criteria for the two focused types on the basis of probabilistic distributions.

Intentional: Liu (2018) found evidence for functionalised IAV in the context of code-switching between English and Chinese. Frequency in patterns of code-switching varied depending on the interaction mode. Participants showed more complex code-switching patterns in written data obtained from online postings in Chinese social media compared to the number of patterns observed in the recordings of semi-structured interviews. The results were explained by the adaptation of a dynamic approach involving the interaction between social, cognitive and situational factors. In online posts, individuals have presumably more time to plan and construct their contribution. This gives them time to protect a self-image they wish to portray to their audience.

Orientation to the audience: In an analysis of historical patient letters, Schiegg (2015) investigated the stigmatised *tun*-construction ('to do' as an auxiliary verb). His results demonstrate that the same patient uses both constructions, with and without *tun*. The *tun*-construction is only used in private letters but not in official letters. This indicates that writers are able to adapt the choice of a grammatical variant according to the reader. The *tun*-construction is thus functionalised in an orientation to the audience. Furthermore, Schiegg (2018) demonstrates IAV in the spelling of individual letters. In a quantitative analysis, he showed that depending on the audience, in informal communication, the handwriting is more irregular, less careful and shows significantly more non-conventionalised spellings than in formal communication.

Another example of audience-designed speech is a study of IAV of Scottish /r/ by Purse and McGill (2016). They observed IAV in /r/-realisations of comedian Frankie Boyle in interviews with another fellow speaker of Glaswegian and a speaker of Southern Standard British English (SSBE). Boyle produced more apical /r/-variants in conversation with the SSBE-speaker and more pharyngeal variants

typical for Scottish English with the fellow Glasgow speaker. The authors concluded that this interactional effect could be best captured by the audience design.

Audience-designed IAV has also been demonstrated for non-verbal behavior for instance by Ishi et al. (2008), who showed that IAV in the frequency of head motions is determined by the personal relationship with the interlocutor.

Frequency: Gnevshva (2015) examined the production of English /u:/ by native Koreans. She found that the realisation varied depending not only on proficiency levels and gender but also on word frequency. More specifically, she reported differences of productions depending on the associated sociolinguistic background. The production of the critical item was found to depend on the word frequency related to a specific topic. More specifically, words that occur in discussion of family topics were produced with a more Korean like /u:/ whereas those associated with university or services were produced with a more nonnative, target-like English vowel.

Appropriateness: In a psycholinguistic study on the appropriateness of the definite article's case selection with *wegen* (*wegen*_{PREP} *des*_{DEF ART-GEN} VS. *wegen*_{PREP} *dem*_{DEF ART-DAT}), Schmitt (2019) reports effects of formality. While the genitive variant was generally most frequently accepted in both formal and informal contexts in the judgements of the individuals, with a slightly higher acceptability in formal contexts, they also accepted the dative variant, however, significantly more frequently in informal contexts than in formal contexts.

Consciousness: A good example to illustrate consciousness or functionalised conscious IAV are impersonators. By means of reproducing articulatory gestures, impersonators are able to voluntarily imitate vocal features (prosody, speech rate, spectral information etc.), as has been shown for example by Neuhauser (2012) and Revis et al. (2013).

Code-switching between varieties (for example dialects and languages) has been described in the literature as both a conscious and an unconscious linguistic phenomenon. Nurtazina et al. (2019) analysed partially structured narrative interviews of Kazakh-Russian bilinguals. In line with previous research they found that some switches between the two languages occur subconsciously, i.e. without the bilinguals' awareness of why and how a particular language is used. The authors propose that the unconscious mechanism of code-switching is a result of cognitive availability. Some lexemes of the Russian L2 are at the surface of memory and hence easier activated. Additionally, switches are considered unmotivated and natural because they occur at syntactic intra- and intersentential boundaries. That means, by switching, bilinguals do not violate grammatical and pragmatic rules and principles, even though the bilinguals' speech is characterised by frequent and unmotivated transitions between the two languages.

Time-dependent: Code-switching *per se* is already IAV. However, in the development of code-switching, IAV occurs as a function of time. Arnfast and Jørgensen (2003) investigated the development of code switches in conversations among American, Polish and Danish students over a period of one year. The results showed that code-switching was initially a reflection of communicative shortcomings in the target language, in that individuals had to revert to their L1. Such switches were usually marked by pauses, hesitations, sighing or explicit comments. Later on, code switches were found to be more fluent, indicating that communicative competence had increased and that code-switching was applied as a resource to enhance social acceptance.

4.4 Mandatory forms

Accuracy: Mandatory forms are always accurate forms. An inaccurate variant will be perceived as an error. This applies to all mental representations with a single formal expression (see above).

Frequency: Mandatory forms can result from processes of language change in which variability decreases to the point where one variant remains as the only form. A typical example for such a process is grammaticalization as found in a process in which two types of inflected adjectives in German were available and reduced in the course of language change. More precisely, in Old High German, inflected and uninflected predicative adjectives were used alternatively (cf. Fleischer 2007). The inflection of the predicate adjective became increasingly less frequent in Middle High German and disappeared altogether in the course of the 16th century. Nowadays, the differentiation between inflective attributive adjectives and non-inflective predicative adjectives is no longer existent.

In this section we presented a selection of studies illustrating the relevance of the various parameters in the investigation of IAV within the four domains. The way in which the parameters interact and thereby cause a dynamic relationship between the domains is at the heart of the following section.

5 Dynamics of the model

The model proposed in Section 4 is in our view not static but dynamic in that (1) IAV is not limited to one of the four categories relevant for IAV; (2) parameters that influence the occurrence of IAV are highly interactive and (3) can change over time. Figure 3 implies that synchronically observed IAV is diachronically not

necessarily limited to one of the four domains. IAV observed in historical data on a specific linguistic level can change and result in another type of IAV on the same or a different linguistic level. Note, however, that IAV observed at a specific point in time can only be allocated to one of the four categories as opposed to the parameters in our model. No interaction appears to be possible between the domains; i.e. they exclude each other when one is considering IAV.

As already mentioned, active language use of a community contributes to language change and development. The causal relationship between IAV and the categories is hence not rigid but flexible and adapts to changes in the linguistic system as well as to extralinguistic reality. More specifically, the switch from non-conditioned to conditioned IAV implies the establishment of connections that shape the core components of the grammatical system in the syntagmatic as well as in the paradigmatic dimension. This relationship, however, is only unidirectional in relation to consideration of a single variety but not in situations of contact between several varieties. In such contact situations, formally conditioned IAV can become unsystematic again. In McWhorter's (2011) words, in this context the linguistic system undresses. Several examples for domain switches can be found in the area of graphemics. Capitalisation, for instance, was in German historically used to structure a text and in names. It became increasingly conditioned in Early New High German (cf. Bergmann and Nerius 1998). In today's Standard German capitalisation is completely conditioned by normative grammars (e.g. Duden-Grammar). This indicates a change from a semantic/pragmatic to a syntactic use. However, in some newer text types capitalisation is functionalised, for instance in online chats (cf. Garley, 2014, see also Park 2007 for English). Another example of a switch of domain is the German Umlaut, which is documented since the Old High German period. Originally, it was phonetically motivated by regressive assimilation and became phonologically conditioned. Today, it is functionalised as a plural marker (cf. Nübling et al. 2017: 297–302). A process of ongoing dynamic change from one domain to another can be seen in *weil* ('because')-V2-sentences in German (cf. Kempen and Harbusch 2016). This language change exemplifies that these processes are not teleological in that the switch is not unidirectional from non-conditioned or conditioned to functionalised but that it works also vice versa. While *weil* was originally used to introduce subordinate clauses, it is now more frequently used interchangeably with a *weil*-V2-sentence, introducing a main clause. This variation currently appears to be restricted to use in oral communication and text types that express social proximity. A completed dynamic change from one domain to another is the syntactic order of V2 in contemporary English. Whilst V2 is mandatory today, syntactic order in Old English was by far more flexible (cf. Cichosz et al. 2016: chap. 3). Alternative syntactic orders were found even within the same text (cf. Lightfoot 1993: 93).

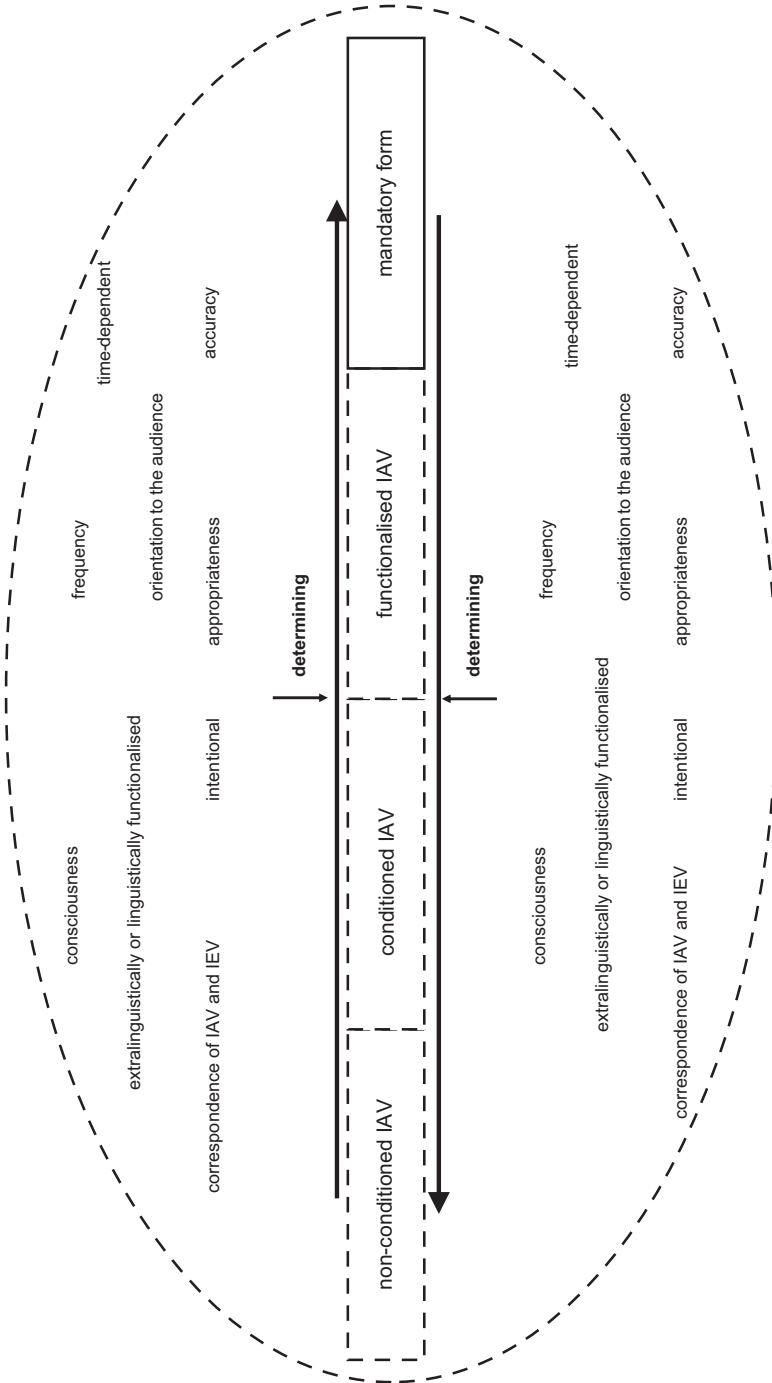


Figure 3: Dynamic Model of IAV.

The dynamics of our model is not limited to switches between domains but includes dynamic changes within the conditioned and functionalised domains. One example of such switches within the domain conditioned is the linking element in German compounds, starting out as a polymorphic genitive marker conditioned by case and syllable structure and ending up as a word formation element conditioned by gender but also by other factors (cf. Nübling and Szczepaniak 2013). Within the domain of functionalised IAV, the dynamics are apparent, for instance, in a switch of linguistically conditioned IAV to functionalised IAV. A concrete example is the auxiliary verb selection concerning the existence of state verbs in German. In Middle High German the selection was determined by telicity, whereas in contemporary German the *sein*-selection is limited to Southern varieties and is thus extralinguistically determined (cf. Keller and Sorace 2003).

Unlike the domains, which exclude each other by definition, the parameters that specify the IAV in the four domains interact in various ways. In the following, it is not our aim to provide a comprehensive overview of all possible interactions but to give some examples. *Correspondence of IAV and IEV* for instance interacts with *consciousness*. With very few exceptions, for example in text types for special purposes such as advertising language, individuals perceive their own IAV unconsciously as IEV compliant because the individual generally assumes she is behaving according to norms of the speech community. Another interaction of *correspondence of IAV and IEV* exists with *accuracy*, in that the latter provides the norm for IEV. IEV in turn provides the frame for the selection of IAV-variants. However, this does not imply that IAV cannot occur outside the norm. Incidences of ungrammatical IAV are governed by the relationship between the parameters *appropriateness*, *orientation to the audience* and *consciousness*. Ungrammatical forms, for instance, can be consciously selected in accordance with a specific audience in relation to which they are appropriate. Another three-way interaction is that between *correspondence of IAV and IEV*, *frequency* and *time-dependency*. This interaction also exemplifies that the parameters underlie (gradual) dynamic changes. In this specific case, it shows that the correspondence of IAV and IEV is not static but flexible, in that IAV may be conventionalised to IEV owing to frequent use in a speech community. In our model, we find asymmetric dependencies. *Intention*, on the one hand, presupposes *consciousness* (excluding linguistic routines) but not vice versa. *Orientation to the audience* requires *intention*, but audience design is not a prerequisite for intention because intention can also be influenced by speaker-design.

6 Scope of application

IAV is not only relevant in the context of theoretical linguistic discourse but also for applied linguistics. Some applications focus on the form of IAV, e.g., forensics and natural language processing, others emphasise functional aspects of IAV, for instance, in rhetoric and aesthetic communication, as outlined below.

IAV finds application in various areas of scientific research. Research scholars are interested in the modelling of IAV as an expression of personal traits and skills. The former involves cues of the individual's natural abilities. The latter refers to characteristics of an individual that may be acquired and developed in response to the individual's situationally and contextually changing environment. In the following we outline some areas of application for IAV and their relevance within the domains of the proposed model.

A first example of application of IAV can be identified in the field of *forensic linguistics*. Cues such as specific types of letters in handwriting or the acoustic voice signature include personal traits that are predisposed, unconscious and unconditioned. Forensic linguistics aims at the description and quantification of personal traits in order to describe and define the range of IAV. Especially in criminal investigations, it can be assumed that individuals consciously and deliberately try to manipulate their characteristic linguistic cues to obscure their identity, which makes this type of IAV functionalised and conscious.

Both conditioned IAV and mandatory forms provide a rule-guided framework or skeleton for the differentiation of different types of IAV. This also applies to the description of the extent of IAV in *automatic speech processing* and *natural language processing* relevant for instance in *human machine communication systems* (cf. Hansen und Boril 2018). While the individual's range of variation in speech production is the object of investigation in forensic linguistics, in NLP the sum of all individuals' IAV is at the center of interest in order to program a system that is able to identify IEV and individual ranges of IAV (cf. Benzeghiba et al. 2007).

In *language development*, IAV can be functionalised as an expression of the learner's progression. This varies according to the linguistic level. In phonology, for instance, the period for this type of functionalised IAV is shorter and early in the process of language development. Syntactic IAV, by comparison, is observable later and for longer in language development. Conditioned IAV, as well as mandatory forms, increasingly occur in acquisition because the linguistic repertoire and the knowledge of conditioned alternatives expand simultaneously. Functionalised IAV can also be an expression of an enlarged repertoire, for instance in code-switching, where specific variants can intentionally be used (see Section 2). However, in this context but also in FLA and any other type of language development, IAV can also be non-conditioned and can be interpreted as an expression

of unstable representation. This unstable mental representation occurs presumably more frequently in earlier periods of language development in FLA and SLA (cf. interlanguages in Selinker 1992) as well as in pathological development and in heritage speaker populations. Later in language development, however, variation can be the expression of a broadened repertoire and the application of linguistic strategies (cf. Penris and Verspoor 2017). On the other hand, IAV in later language development can also be associated with the beginning of deterioration of mental representation occurring in later periods of language development (cf. Gerstenberg and Voeste 2015) as dealt with in *clinical linguistics*.

Generally, the basis of a functioning communication is the compliance of the individual to the boundaries that conditioned, functionalised, and mandatory forms impose on the language system. The more knowledge is available about the appropriate and accurate application of these types of IAV and the more automatised the individuals become in their use, the more successful they are in their attainment of communicative goals. This type of variation is relevant in the field of *rhetoric* and *aesthetics* and in the communication and speech sciences. These areas deal with variants that are most appropriate in a specific situation or for a specific text type and can thus be consciously and specifically selected by the individual (cf. Giles 1973).

We hope to have shown that IAV is relevant in multiple areas of application and that it can be investigated from various perspectives. This also implies that, depending on the type of IAV, various methodological approaches are available and can be applied. With this first attempt to structure and systematise the different types of IAV, we have tried to provide a basis for a more unified terminology and conceptualisation of IAV. It was one of our aims in this argumentation to expand the view on IAV into domains that so far have not been systematically considered under the topic of IAV, i.e. conditioned and linguistically functionalised IAV. In this regard, we distance ourselves from approaches that subsume under IAV only those variants that are random or extralinguistically functionalised, as mentioned at the beginning of Section 3. We are aware that several issues remain to be debated. One of these may be the possibility of adding more parameters to the model that can explain and differentiate IAV within the four proposed domains. Another aspect that deserves further theoretical and empirical attention is the interaction amongst these factors. The contributions in this volume deal with various aspects of IAV and the reader may thereby be encouraged to further investigate aspects of IAV.

References

- Adger, David & Jennifer Smith. 2005. Variation and the minimalist program. In Leonie Cornips & Karen P. Corrigan (eds.), *Syntax and Variation: Reconciling the Biological and the Social*, 149–178. Amsterdam & Philadelphia: John Benjamins.
- Arnfast, Juni Söderberg & J. Normann Jørgensen. 2003. Code-switching as a communication, learning, and social negotiation strategy in first-year learners of Danish. *International Journal of Applied Linguistics* 13(1). 23–53.
- Auer, Anita. 2015. Stylistic Variation. In Anita Auer, Daniel Schreier & Richard J. Watts (eds.), *Letter Writing and Language Change*, 133–155. Cambridge: University Press.
- Bayles, Andrew, Aaron Kaplan & Abby Kaplan. 2016. Inter- and intra-speaker variation in French schwa. *Glossa: a journal of general linguistics* 1(1). 1–30
- Benzeghiba, Mohamed, Renato De Mori, Olivier Renato, Stéphane Dupont, T. Erbes, Denis Jouvet, Luciano Fissore, Pietro Laface, Alfred Mertins, Christophe Ris, Richard Rose, Vivek Tyagi & Christian Wellekens. 2007. Automatic Speech Recognition and Speech Variability: a Review. *Speech Communication* 49. 763–786.
- Bergmann, Rolf & Dieter Nerius. 1998. *Die Entwicklung der Großschreibung im Deutschen von 1500–1700*. 2 Vol. Heidelberg: Winter.
- Biber, Douglas & Susan Conrad. 2009. *Register, Genre, and Style*. Cambridge: Univ. Press.
- Blom, Jan-Petter & John Gumperz. 2000 [1972]. Social Meaning in Linguistic Structure. Code-Switching in Norway. In Li Wei (eds.), *The Bilingualism Reader*, 111–136. London: Routledge. Reprint.
- Bolinger, Dwight L. 1968. Entailment and the meaning of structures. *Glossa* 2. 119–127.
- Brennan R. Payne & Kara D. Federmeier. 2017. Pace Yourself: Intraindividual Variability in Context Use Revealed by Self-paced Event-related Brain Potentials. *Journal of Cognitive Neuroscience* 29(5). 837–854.
- Bülow, Lars & Simone E. Pfenninger. 2021. Introduction: Reconciling linguistic approaches to intra-individual variation. *Linguistics Vanguard*; 7(s2): 20200027
- Bülow, Lars, Hannes Scheutz & Dominik Wallner. 2019. Variation and Change of Plural Verbs in Salzburg's Base Dialects. In Antje Dammel & Oliver Schallert (eds), *Morphological Variation: Theoretical and empirical perspectives*, 95–134. Amsterdam & Philadelphia: John Benjamins.
- Bybee, Joan L. 2013. Usage-based Theory and Exemplar Representations of Constructions. In Thomas Hoffmann & Graeme Trousdale (eds), *The Oxford Handbook of Construction Grammar*, 49–69. Oxford: Univ. Press.
- Bybee, Joan L. & Clay Beckner. 2010. Usage-based theory. In Bernd Heine & Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 827–856. Oxford: Oxford University Press. 2. Ed.
- Chambers, C. K. & Peter Trudgill. 1998. *Dialectology*. Cambridge: Univ. Press. 2. Ed.
- Chambers, C. K. 2003. *Sociolinguistic Theory*. Oxford et al.: Blackwell.
- Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge: MIT Press.
- Cichosz, Anna, Jerzy Gaszewski & Piotr Pęzik. 2016. *Element Order in Old English and Old High German Translations*. Amsterdam & Philadelphia. John Benjamins.
- Coleman, Robert F. & Ira W. Markham. 1991. Normal variations in habitual pitch. *Journal of the voice* 5(2). 173–177.

- Compernelle, Rémi van & Lawrence Williams. 2009. Learner versus nonlearner patterns of stylistic variation in synchronous computer-mediated French: Yes/No questions and nous versus on. *Studies in Second Language Acquisition* 31(03). 471–500.
- De Bot, Kees & Lars Bülöw. 2020. Cognitive factors of language contact. In Evangelia Adamou & Yaron Matras (eds.), *Routledge Handbook of Language Contact*, 168–184. London: Routledge.
- De Bot, Kees, Wander Lowie & Marjolijn Verspoor. 2007. A Dynamic Systems Theory approach to second language acquisition. *Bilingualism: Language and Cognition* 10. 7–21.
- Dewaele, Jean-Marc & D. Véronique. 2001. Gender assignment and gender agreement in advanced French interlanguage: a cross-sectional study. *Bilingualism: Language and Cognition* 4(3). 275–297.
- De Groot, Freek Olaf. 2012. Intra-Individual Learner Variation in English L2 Writing: A Case Study of Complexity, and Accuracy Development in Intensive English Language Programs. *FLTL Journal* 1(1). 46–66. Thammasat University, Thailand.
- De Weerth, Carolina, Paul van Geert & Herbert Hoijtink. 1999. Intraindividual variability in infant behavior. *Developmental Psychology* 35(4). 1102–1112.
- Ellis, Rod. 1985. Sources of variability in interlanguage. *Applied Linguistics* 6(2). 118–131.
- Ellis, Rod. 1992. Learning to communicate in the classroom: A study of two learners' requests. *Studies in Second Language Acquisition* 14(1). 1–23.
- Ellis, Rod. 1999. Item versus system learning: explaining free variation. *Applied Linguistics* 20. 460–480.
- Elman, J. L. 1981. Effects of frequency-shifted feedback on the pitch of vocal productions. *Journal of the Acoustical Society of America* 70(1). 45–50.
- Fagot, Delphine, Nathalie Mella, Erika Borella, Paolo Ghisletta, Thierry Lecerf & Anik De Ribaupierre. 2018. Intra-Individual Variability from a Lifespan Perspective: A Comparison of Latency and Accuracy Measures. *Journal of Intelligence* 6(16). 1–18.
- Fleischer, Jürg. 2007. Das prädikative Adjektiv und Partizip im Althochdeutschen und Altniederdeutschen. *Sprachwissenschaft* 32(3). 279–348.
- Friederici, Angela D., Noam Chomsky, Robert C. Berwick, Andrea Moro & Johan J. Bolhuis. 2017. Language, mind and brain. *Nature Human Behaviour* 1. 713–722.
- Garley, Matt. 2014. Seen and not heard: The relationship of orthography, morphology, and phonology in loanword adaptation in the German hip hop community online. *Discourse, Context & Media* 3. 27–36.
- Garman, Michael. 1990. *Psycholinguistics*. Cambridge: University Press.
- Garnier, Maëva & Nathalie Henrich. 2014. Speaking in noise: How does the Lombard effect improve acoustic contrasts between speech and ambient noise? *Computer Speech & Language* 28(2). 580–597.
- Geert, Paul van. 1994. *Dynamic systems of development: Change between complexity and chaos*. New York: Harvester Wheatsheaf.
- Geert, Paul van & Marijn van Dijk. 2002. Focus on variability: New tools to study intra-individual variability in developmental data. *Infant Behavior & Development* 25. 340–375.
- Gerstenberg, Annette & Anja Voeste (eds.). 2015. *Language development: The lifespan perspective IMPACT: Studies in language and society: Vol. 37*. Amsterdam: John Benjamin.
- Giles, Howard. 1973. Accent mobility: a model and some data. *Anthropological Linguistics* 15(2). 87–105.
- Giles, Howard, Nikolas Coupland & Justine Coupland. 1991. Accommodation theory: Communication, context, and consequence. In Howard Giles, Justine Coupland & Nikolas

- Coupland (eds.), *Studies in emotion and social interaction. Contexts of accommodation: Developments in applied sociolinguistics*, 1–68. Cambridge University Press; Editions de la Maison des Sciences de l'Homme.
- Gnevshva, Ksenia. 2015. Intra-speaker variation and 'accentedness' in non-native English speakers. In Linda Kahlin, Mats Landqvist & Ingela Tykesson (eds.), *Språk och Identitet. Papers from the ASLA Symposium, Södertörn University, 8–9 May 2014*. 23–32.
- Gumperz, John J. 1964. Linguistic and social interaction in two communities. *American Anthropologist* 66(6). 137–153.
- Hall, Alan T. 1999. The phonological word: a review. In Alan T. Hall & Ursula Kleinhenz (eds.), *Studies on the Phonological Word*, 1–22. Amsterdam & Philadelphia: John Benjamins.
- Halliday, Michael A. K. 1978. *Language as Social Semiotic: The Interpretation of Language and Meaning*. London: Edward Arnold.
- Hansen, John & Hynek Boril. 2018. On the Issues of Intra-Speaker Variability and Realism in Speech, Speaker, and Language Recognition Tasks. *Speech Communication* 101. 94–108.
- Harrington, Jonathan. 2007. Evidence for a relationship between synchronic variability and diachronic change in the Queen's annual Christmas broadcasts. *Laboratory Phonology* 9. 125–144.
- Harris, Zellig S. 1970. *Papers in structural and transformational linguistics*. Dordrecht: Reidel.
- Hernández-Campoy, Juan M. & Juan A. Cutillas-Espinosa. 2012. Introduction: style-shifting revisited. In Juan M. Hernandez-Campoy & Juan A. Cutillas-Espinosa (eds.), *Style-Shifting in Public: New Perspectives on Stylistic Variation*, 1–18. Amsterdam/Philadelphia: John Benjamins.
- Hernández-Campoy, Juan M. 2016. *Sociolinguistic Styles*. Blackwell: Wiley.
- Herrgen, Joachim. 1986. *Koronalisierung und Hyperkorrektur*. Stuttgart: Steiner.
- Hopper, Paul. 1991. On some principles of grammaticalization. In Elizabeth Closs Traugott & Bernd Heine (eds.), *Approaches to Grammaticalization*, Vol. 2, 17–35. Amsterdam & Philadelphia: John Benjamins.
- Ishi, Carlos T., Hiroshi Ishiguro & Norihiro Hagita. 2008. Analysis of inter- and intra-speaker variability of head motions during spoken dialogue. Proceedings of the International Conference on Auditory-Visual Speech Processing. 26–29 September 2008, Moreton Island, Australia. 37–42.
- Jensen, Torben Juel. 2017. Generic 'du' in time and context: A study of intra-individual variation and change. In Dorthe Duncker & Bettina Perregaard (eds.), *Creativity and continuity: Perspectives on the dynamics of language conventionalization*, 209–234. Copenhagen. University Press.
- Johnson, Keith. 2006. Resonance in an exemplar-based lexicon: The emergence of social identity and phonology. *Journal of Phonetics* 34(4). 485–499.
- Kahn, Juliette, Nicolas Audibert, Jean-François Bonastre & Solange Rossato. 2011. Inter and intra-speaker variability in French: an analysis of oral vowels and its implications for automatic speaker verification. *ICPhS XVII Hong Kong, 17–21 August 2011*. 1002–1005.
- Keller, Rudi. 1994. *On Language Change: The Invisible Hand in Language*. London & New York: Routledge.
- Keller, Frank & Antonella Sorace. 2003. Gradient Auxiliary Selection and Impersonal Passivization in German: An Experimental Investigation. *Journal of Linguistics* 39(1). 57–108.
- Kempen, Gerard & Karin Harbusch. 2016. Verb-second word order after German *weil* 'because': Psycholinguistic theory from corpus-linguistic data. *Glossa: A Journal of General Linguistics* 1(1). 1–32.

- Kurumada, Chigusa, Meredith Brown & Michael K. Tanenhaus. 2012. Pragmatic interpretation of contrastive prosody: *It looks like* speech adaptation. *Proceedings of the Annual Meeting of the Cognitive Science Society* 34(34). 647–652.
- Labov, William. 1966. *The Social Stratification of English in New York City*. Washington DC: Center for Applied Linguistics.
- Labov, William. 1972. Some Principles of Linguistic Methodology. *Language in Society* 1(1). 97–120.
- Langlotz, Miriam & Linda Stark. 2019. Zweifelsfälle der Interpunktion. Zwischen System, Norm und Usus. In Eleonore Schmitt, Renata Szczepaniak & Annika Vieregge (eds.), *Sprachliche Zweifelsfälle. Definition, Erforschung, Implementierung*, 211–248. Hildesheim et al.: Olms.
- Larsen-Freeman, Diane. 1997. Chaos/complexity science and second language acquisition. *Applied Linguistics* 18. 140–165.
- Larsen-Freeman, Diane & Lynne Cameron. 2008. *Complex systems and applied linguistics*. Oxford: University Press
- Lehmann, Christian. 2015. *Thoughts on Grammaticalization*. Language Science Press.
- Lewis, Marc D. 2011. Dynamic systems approaches: Cool enough? Hot enough? *Child Development Perspectives* 5. 279–285.
- Lightfoot, David. 1993. *The Development of Language*. Malden: Blackwell.
- Liu, Hong. 2018. Intra-speaker variation in Chinese-English code-switching: The interaction between cognitive and contextual factors. *International Journal of Bilingualism* 22(6). 740–762.
- Lowie, Wander. 2017. Lost in state space? Methodological considerations in Complex Dynamic Theory approaches to second language development research. In Lourdes Ortega & ZhaoHong Han (eds.), *Complexity Theory and Language Development: In Celebration of Diane Larsen-Freeman*, 123–141. Amsterdam & Philadelphia: John Benjamins.
- Lowie, Wander & Marjolijn Verspoor. 2019. Individual Differences and the Ergodicity Problem. *Language Learning* 69(S1). 184–206.
- Macha, Jürgen. 2005. Entwicklungen und Perspektiven in der Dialektologie des Deutschen: einige Schlaglichter. *Linguistik Online* 24(3). 9–18.
- MacKenzie, Laurel. 2017. Frequency effects over the lifespan: a case study of Attenborough's r's. *Linguistics Vanguard* 3. 1–12.
- Meyerhoff, Miriam. 2006. *Introducing Sociolinguistics*. London: Routledge.
- McCarthy, John J. 2003. OT constraints are categorical. *Phonology* 20. 75–138.
- McWhorter, John H. 2011. *Linguistic Simplicity and Complexity. Why do languages undress?* Berlin & Boston: Mouton de Gruyter.
- Meibauer, Jörg. 2012. What is a context? Theoretical and empirical evidence. In Rita Finkbeiner, Jörg Meibauer & Petra B. Schumacher (eds.), *What is a context? Linguistic Approaches and Challenges*, 9–32. Amsterdam & Philadelphia: John Benjamins.
- Milroy, Lesley & Matthew Gordon. 2003. *Sociolinguistics. Method and Interpretation*. Oxford: Blackwell.
- Molenaar, Peter C. M. 2004. A manifesto on psychology as idiographic science: Bringing the person back into scientific psychology, this time forever. *Measurement* 2(4). 201–218.
- Morrison, Geoffrey Stewart. 2005. Dat is what the PM said: A quantitative analysis of Prime Minister Chrétien's pronunciation of English voiced dental fricatives. *Cahiers linguistiques d'Ottawa* 33. 1–21.

- Neuhauser, Sara. 2012. *Phonetische und linguistische Aspekte der Akzentimitation im forensischen Kontext*. Tübingen: Narr.
- Nobre, Anna C. & Kim Plunkett. 1997. The neural system of language: structure and development. *Current Opinion in Neurobiology* 7(2). 262–268.
- Nübling, Damaris & Renata Szczepaniak. 2013. Linking elements in German. Origin, Change, Functionalization. *Morphology* 23(1). 67–89.
- Nübling, Damaris, Antje Dammel, Janet Duke & Renata Szczepaniak. 2017. *Historische Sprachwissenschaft*. Tübingen: Narr. 5. Ed.
- Nurtazina, Maral, Nikolay Alefirenko, Jindřich Kesner & Zuhra Shakhputova. 2019. Linguistic and Extralinguistic Factors of Code-Switching as a Process of Contacting Languages. *Advances in Social Science, Education and Humanities Research* 298. 577–583.
- Ohala, John O. 1981. The listener as a source of sound change. In Carrie S. Masek, Roberta A. Hendrick & Mary F. Miller (eds.), *Papers from the Parasession on Language and Behavior Chicago Linguistic Society*, 178–203.
- Park, Jung-ran. 2007. Interpersonal and Affective Communication in Synchronous Online Discourse. *The Library Quarterly: Information, Community, Policy* 77 (2). 133–155.
- Paul, Hermann. 1975[1880]. *Prinzipien der Sprachgeschichte*. 9. Ed. Tübingen: Niemeyer.
- Penris, Wouter & Marjolijn Verspoor. 2017. Academic writing development: a complex, dynamic process. In Simone Pfenninger & Judit Navracscs (eds.), *Future Research Directions for Applied Linguistics*, 215–242. Tonawanda, NY: Bristol.
- Pfenninger, Simone E. & David Singleton. 2016. Affect trumps age: A person-in-context relational view of age and motivation in SLA. *Second Language Research* 32(3). 311–345.
- Phillips, Natalie A., Norman Segalowitz, Irena O'Brien & Naomi Yamasaki. 2004. Semantic priming in a first and second language: evidence from reaction time variability and event-related brain potentials. *Journal of Neurolinguistics* 17. 237–262.
- Pierrehumbert, Janet. 2001. Exemplar dynamics: Word frequency, lenition and contrast. In Joan Bybee & Paul Hopper (eds.), *Frequency and the Emergence of Linguistic Structure*, 137–157. Amsterdam & Philadelphia: John Benjamins.
- Prince, Alan & Paul Smolensky. 2004 [1993]. *Optimality Theory: Constraint interaction in generative grammar*. Malden: Blackwell.
- Purse, Ruairidh & Euan McGill. 2016. An Intraspeaker Variation Study of Scottish English /r/ Pharyngealisation. *Lifespans and Styles* 2. 36–44.
- Revis, Joana, Céline De Looze & Antoine Giovanni. 2013. Vocal Flexibility and Prosodic Strategies in a Professional Impersonator. *Journal of Voice* 27(4), 524.
- Rieger, Caroline L. 2003. Repetitions as self-repair in English and German conversations. *Journal of Pragmatics* 35. 47–69.
- Robinson, Orrin W. 2001. *Whose German? The ach/ich alternation and related phenomena in 'standard' and 'colloquial'*. Amsterdam & Philadelphia: John Benjamins.
- Romaine, Suzanne. 1982. *Socio-Historical Linguistics: Its Status and Methodology*. Cambridge: University Press.
- Rosansky, Ellen J. 1976. Methods and Morphemes in Second Language Acquisition Research. *Language Learning* 26(2). 409–425.
- Sancier, M. L. & C. A. Fowler. 1997. Gestural drift in a bilingual speaker of Brazilian Portuguese and English. *Journal of Phonetics* 25(4). 421–436.
- Schiegg, Markus. 2015. Der flexible Schreiber in der Sprachgeschichte. Grammatische Variation in süddeutschen Patientenbriefen des 19. Jahrhunderts. *Zeitschrift für Dialektologie und Linguistik* 82(2). 169–205.

- Schiegg, Markus. 2018. Factors of Intra-Speaker Variation in Nineteenth-Century Lower-Class Writing. *Neuphilologische Mitteilungen* 119. 101–120.
- Schilling-Estes, Natalie. 2002. Investigating Stylistic Variation. In J. K. Chambers, Peter J. Trudgill & Natalie Schilling-Estes (eds.), *The Handbook of Language Variation and Change*, 375–401. Oxford: Blackwell.
- Schmitt, Eleonore. 2019. How do cases of doubt cause doubts? In Eleonore Schmitt, Renata Szczepaniak & Annika Vieregge (eds.), *Sprachliche Zweifelsfälle. Definition, Erforschung, Implementierung*, 97–135. Hildesheim et al.: Olms.
- Selinker, Larry. 1992. *Rediscovering interlanguage*. New York, NY: Longman.
- Silverstein, Michael. 2003. Indexical order and the dialectics of sociolinguistic life. *Language & Communication* 23. 193–229.
- Singleton, David. 2021. The random and the non-random in intra-individual L2 variation. *Linguistics Vanguard*; 7(s2): 20200031
- Tarone, Elaine E. 1982. Systematicity and attention in interlanguage. *Language Learning* 32(1). 69–82.
- Thelen, Esther & Linda B. Smith. 1994. *A dynamic systems approach to the development of cognition and action*. Cambridge: MIT Press.
- Thomas, Christine, Eckart Altenmüller, Georg Marckmann, Jürgen Kahrs & Johannes Dichgans. 1997. Language processing in aphasia: changes in lateralization patterns during recovery reflect cerebral plasticity in adults. *Electroencephalography and clinical Neurophysiology* 102. 86–97.
- Tobin Stephen J., Hosung Nam & Carol A. Fowler. 2017. Phonetic drift in Spanish-English bilinguals: Experiment and a self-organizing model. *Journal of Phonetics* 65. 45–59.
- Toffoli, Denyze. 2020. Complex Dynamic Systems Theory (CDST). *Informal Learning and Institution-wide Language Provision. New Language Learning and Teaching Environments*. Palgrave Macmillan, Cham
- Tomasello, Michael. 2008. *Origins of human communication*. Cambridge: MIT Press.
- Werth, Alexander, Karen Henrich, Josephine Rocholl, Manuela Lanwermyer, Hanni Schnell, Ulrike Domahs, Joachim Herrgen & Jürgen Erich Schmidt. 2018. The interaction of vowel quantity and tonal cues in cognitive processing: an MMN-study concerning dialectal and standard varieties. In Christiane Ulbrich, Alexander Werth & Richard Wiese (eds.), *Empirical Approaches to the Phonological Structure of Words*, 183–211. Berlin & Boston: Walter de Gruyter.
- Yao Yao. 2011. *The effects of phonological neighborhoods on pronunciation variation in conversational speech*. PhD Univ. Berkeley.
- Zhang, Cuiling, Joost van de Weijer & Jingxu Cui. 2006. Intra- and inter-speaker variations of formant pattern for lateral syllables in Standard Chinese. *Forensic Science International* 158. 117–124.



Part I: Phonetic-phonological dimension

Christiane Ulbrich

Everyone Is Different, So Everyone Is the Same – Intra-individual Variation in Second Language Acquisition

Abstract: This paper presents the results of an analysis of production data obtained from twelve female native Spanish learners of L2 German recorded during a collaborative map-task in order to investigate phonetic accommodation. Phonetic accommodation is a process by which speakers increasingly select variants produced by an interlocutor in conversation. The focus of the study is on the realisation of neutralisation of final voicing contrast in plosives, a process found in German but not in Spanish according to existing contrastive analysis. Two main objectives were pursued in the study: (i) whether phonetic accommodation varies depending on the proficiency level of the participants as well as that of the interlocutor and (ii) whether individual subsegmental characteristics are affected differently. The findings show that both proficiency level and interlocutor influence the degree of accommodation. The findings also reveal that not all analysed subsegmental cues show comparable accommodation effects, and that the realisation of individual subphonemic cues leads to a high degree of inter- and intra-speaker variation. The greatest accommodation effects were found in conversations of highly proficient, non-native participants with a native speaker of German but also with a highly proficient non-native interlocutor. Participants with lower proficiency levels showed comparatively fewer accommodation effects. The degree of intra-individual variation seems to vary depending on proficiency level, in that the distribution of target-like and non-target-like realisations differs between L2 speakers of high and low proficiency. However, both target-like and non-target-like realisations occur in the speech samples of all L2 speakers.

Keywords: phonetic accommodation, neutralisation of final voicing contrast, proficiency level, collaborative map-task

1 Introduction

Intra-individual variation (IAV) in the realisation of phonetic details or subphonemic cues as well as in the representation of phonological categories has frequently been documented in interactions of multilingual individuals (cf. Flege 1995; Fabiano-Smith et al. 2010; Jiang 2010). Such variation can occur because of

<https://doi.org/10.1515/9783110743036-003>

automatic and spontaneous or intentional and conscious imitation of perceived characteristics in an interlocutor's or a model speaker's speech. That means the individual produces different variants in the course of a single conversation resulting from perceptually guided changes in speech production. The variation occurs at any level of speech production and is referred to as speech accommodation (or simply accommodation) (e.g. Tobin et al. 2017). Phonetic accommodation is a subset of speech accommodation that considers accommodation effects at the phonetic level only. A specific case of phonetic accommodation is phonetic drift (Sancier and Fowler 1997), referring to cross-language effects resulting from exposure to a language that an individual is familiar with but not constantly using.¹

Within the field of language acquisition, a phenomenon might be considered a macro-level of accommodation when interlocutors consciously or unconsciously switch the entire language because of insufficient proficiency or volitional discourse strategies in multilingual communications. In addition to psycholinguistic aspects and aspects of communication design, grammatical constraints permitting or prohibiting language switches within and across sentences have also been previously investigated (cf. Myers-Scotton 2002; Clyne 2003; Riehl 2014; Müller 2017). The type of accommodation that is the focus of the present chapter may be considered the micro-level of accommodation. It is concerned with individual linguistic aspects, which have been attested on all linguistic levels (e.g. for syntax see Bock 1986; Gries 2005; for morphology see Trudgill 1986; Dunstan 2010; for semantics (and pragmatics) see Heim 1992; Beaver and Zeevat 2007; Liberman 2012; for lexical choice see Van Baaren et al. 2003; Jacob et al. 2011; for phonetics and phonology see Sancier and Fowler 1997; Pardo 2006; Nilsenová et al. 2009; Fabiano-Smith et al. 2010; Chang 2013; Pardo et al. 2013; Tobin et al. 2017; and for multiple levels of linguistics see Ferrarra 1991). The effects are not limited to oral communication but were also found in text-based communication documented by Schiegg and Sowada (2019, see also Schiegg 2015). The results of Schiegg's detailed real-time case studies, for instance, show accommodation effects in the

1 Note that the terminology in this research area is rather inconsistent and depends on the focus of the investigation. Strategies through which individuals adapt to each other's communicative behaviours to reduce social differences are referred to as convergence (Giles et al. 1991, Pardo 2006) as opposed to divergence. Further terms are alignment (Pickering and Garrod 2006), entrainment (Brennan 1996), synchrony (Edlund et al. 2009), mimicry (Pentland 2008), chameleon effect (Chartrand and Bargh 1999), or adaptation (Kaland 2014; Kurumada et al. 2014). In child language acquisition, motherese refers to child-directed speech (Hayes and Ahrens 1988; Fernald et al. 1989; Niwano, and Sugai 2003), and foreignese is used for interaction with non-native speakers (Ferguson 1975; Zuengler 1991; Smith 2007). The Lombard effect (Van Summers et al. 1988; Zeine and Brandt 1988) is a type of accommodation whereby speakers increase their vocal levels in adaptation to background noise to increase intelligibility.

handwriting of individual letters and in the use of specific grammatical forms. More recently, similar effects of convergence in written online-communication were documented, in particular, concerning lexical and grammatical choices but also utterance length (e.g. Bunz and Campbell 2004; Scissors et al. 2009; Danescu-Niculescu-Mizil et al. 2011). In addition, facial expression (Bavelas et al. 1986; Hess and Blairy 2001), gestures, body postures and movements (Condon and Sander 1974; Meltzoff and Moore 1977; Maurer and Tindall 1983; Bernieri and Rosenthal 1991; Chartrand and Bargh 1999; Richardson et al. 2007; Shockley et al. 2007) were found to converge between interlocutors.

Accommodation effects have long been known and theorised about, especially in the field of sociolinguistics and variationist linguistics, leading to the establishment of the communication accommodation theory (CAT cf. Giles et al. 1991). Early works focussed on speech patterns that were found to vary depending on interlocutors' attitudes to discourse-contextual, situational or social factors (Giles 1973; Bourhis and Giles 1977). The analysis emphasised the evaluation of speakers' competence and social attributes as well as how listeners perceive the speakers' association with those attributes. Recently, with an increased research emphasis on the flexibility and the dynamics of linguistic representation, interest in accommodation effects has been revived with a considerably broadened focus. Accommodation effects have been found to explain both intra- and interspeaker variation in (first and second) language acquisition, in language use and change, in forensic and clinical linguistics, in psycho- and neurolinguistics, and in automatic speech recognition, to name just a few.

Even though accommodation is a well-known and widespread phenomenon within the field of linguistics, its origin and causes are still not very well understood. Some scholars provide evidence for accommodation as a socially motivated, voluntary and conscious strategy applied by the speaker. Such strategies are interpreted as an attempt to gain social approval (Holtgraves 2002) but also as an attempt to facilitate language processing and enhance communicative success (Giles and Coupland 1991; Ryalls and Pisoni, 1997). This also leads to frequently observed asymmetrical effects (c.f. Gregory and Webster 1996; Roth and Tobin 2010). Trudgill (2008), on the other hand, argues that accommodation occurs automatically, providing the basis for social group identity rather than causing it. In line with this assumption, previous research demonstrated automatic accommodation effects unrelated to social factors but caused by factors such as novelty, atypicality, recency and immediacy (cf. Enzina 2018). Accommodation in that view is an involuntary and unconscious phenomenon, as also proposed by Pickering and Garrod (2004) in the interactive alignment account. This account is based on the authors' fundamental belief that interaction between individuals is the basic form of language use. Accommodation occurs because of self-monitoring

and repair mechanisms employed to ensure common ground between interlocutors. The process is automatic and “only depends on simple priming mechanisms” (Pickering and Garrod 2004:188).

The assumption that accommodation is automatic and subconscious also finds support in studies of alignment in situations without any interpersonal contact, depicting accommodation as a low-level mechanism of the perceptual-motor system (Fowler et al. 2003; Mitterer and Müsseler 2013; Dias and Rosenblum 2016). Especially imitation and shadowing experiments, deliberately excluding social factors from the experimental set-up, found evidence for automatic accommodation leading to the proposal of an exemplar-based model of accommodation by Goldinger (1998). He found fewer accommodation effects in high-frequency words as compared to low-frequency words. Phonetic accommodation is hence seen as an automatic reflex of the cognitive system. Furthermore, the perception-production-link has been suggested to cause the automatic effect, in that individuals memorise perceived speech gestures, which accounts for their imitation (Shockley et al. 2004). The perception-production-link allows for alignment to detailed pronunciation owing to traces stored in the lexicon that can later be retrieved, increasing mutual intelligibility (Liberman and Mattingly 1985; Fowler and Galantucci 2005; Pickering and Garrod 2004, 2013).

In sum, this means that (i) various factors, related to the requirements of a specific communication situation, determine the type and the degree of accommodation (c.f. Dijksterhuis and Bargh 2001; Garrod and Pickering 2007; Branigan et al. 2010) and (ii) that the nature of accommodation remains largely unclear. Whereas in psycholinguistic accounts, such as the interactive alignment account (Pickering and Garrod 2004) and exemplar-based accounts (Goldinger 1998), accommodation is inevitable and automatic, in socio-psychological models, such as CAT (Shepard et al. 2001), individuals have a choice about how to modify their speech to manipulate their social distance from the interlocutor.

1.1 Accommodation in second language acquisition

Accommodation Theory found its way into SLA research relatively late, considering that it had been established already in the 1970s (cf. Zuengler 1991). A reason may be that only recently has interest in language use and functionality, as aspects relevant for cognitive language development and representation, as well as their application in teaching and learning, increased (Garrod and Pickering 2013; Trofimovich 2016). Findings, however, are not conclusive. Snow (1995), for instance, found higher pitch, shorter sentences and a slower speech rate in conversations of native speakers with non-native speakers compared to conversations amongst

native speakers. Smith (2007) reports the results of the analysis of an interactive task whereby native speakers of French give directions to both native and non-native speakers of French. Accommodation effects were found across a significantly greater pitch range in conversations with non-natives compared to those with French native interlocutors. However, speech rate and utterance duration were not modified in either setting. This contradicts Snow's (1995) findings as well as those reported by Burin and Ballier (2017). They found speech rate adaptation in both an advanced learner of English and two British native speakers. Over the course of the interaction in English, the former was shown to increase speech rate, whereas the latter two slowed down. Such inconsistencies and ambiguities may be due to competing mechanisms and factors involved. Accommodation, as a socially motivated phenomenon, as well as accommodation as an implicit and automatic coupling of perception and motor-sensory action, have been reported for interactions involving non-native speakers (cf. Dragojevic et al. 2015). Foreign-accented speech is often perceived as a social marker but also affects intelligibility, which in turn may affect social attitudes (Dragojevic and Giles 2016), suggesting that both social and perceptual signals interact and influence speech accommodation. A non-native accent conveys, for instance, information about the proficiency level of the speakers and other social factors that are associated with patterns of language use (Giles and Ogay 2007; Gluszek and Dovidio 2010; Atagi and Bent, 2015). Furthermore, speech of non-native speakers is often associated with negative attitudes (McKirnan and Hamayan 1984), and their speakers are rated to have a lower social status and general competence (Nelson et al. 2016). Non-native speakers may be sensitive to such valuations and hence desire to adapt their verbal behaviour in order to comply with attitudes and aspects of social identity (cf. Zuengler 1982; Giles and Johnson 1987).

In addition to social motivation, further factors mediating between social and perceptual signals have been studied. Lewandowski (2012) for instance found that more talented speakers are more likely to accommodate compared to less talented speakers. Llanos and Francis' (2017) study of English-accented Spanish revealed an effect of language experience and speech context on accommodation of voice onset time (VOT). As mentioned already above, accommodation has also been reported to depend on word frequency (see above Goldinger 1998). This finds support in a study by Bozena and Levy (2014), who found that the ability of non-natives to discriminate between sounds derives from generalisation of perceived input tokens. Findings of an imitation task with and without distraction administered to Asian immigrants learning English as an L2 by Adamson and Regan (1991) revealed that speakers do align to the patterns of the model speakers, but that the imitation is reduced when participants were distracted by an additional task prior to imitation. That means the task influences accom-

modation, as confirmed in a study of non-release patterns in two-word noun phrases with a stop sequence across the word boundary in Polish L2 speakers of English (Rojczyk et al. 2013). However, compared to interactions amongst natives, non-natives have been reported to accommodate less. This failure of non-native speakers to accommodate to native model-speakers or interlocutors cannot be mistaken, though, for lack of voluntary and wilful adaptation. Kim et al. (2011), for instance, obtained similarity judgments for utterances of interlocutors with different languages and dialects and demonstrated largest accommodation effects in same-dialect conditions. However, effects were also found in non-native interactions but appeared to depend on proficiency level. Effects were greatest in moderately accented non-native speech. The extent of phonetic accommodation of non-native speakers towards native speech was hence attributed to extra demands the second language production imposes on the L2 speakers and to the fact that these demands may block possible alignment processes. Similarly Smiljanić and Bradlow (2011) studied phonetic accommodation in L2 speech depending on accent and intelligibility. The authors' hypothesis is that L2 learners are relatively inexperienced in noticing salient features in their L2 production, so that they should not be able to adapt to a more native accent and thus to improve intelligibility compared to native speakers. This was confirmed by the data. Accentedness was not found to be associated with the significant improvement of intelligibility. However, intelligibility of non-natives' speech was enhanced when they heard clear speech. That means proficiency in a second language is relevant to phonetic accommodation. While we may assume a desire of non-native speakers to achieve a high level of intelligibility, only higher proficiency may allow for the application of accommodation strategies and for automatisms to kick in.

1.2 Cross-linguistic differences between German and Spanish in the realisation of word-final plosives

Differences between the two languages exist on the segmental, the suprasegmental and the phonotactic level of spoken language (Hirschfeld 1988). Interesting for the present study are the restrictions on syllable-final consonants. As opposed to German codas, Castilian Spanish only allows a very limited number of consonants in the coda and has proportionally fewer closed syllables (Lleó et al. 2003). According to Quilis (1993) 68.8% of syllables are open. The coda is predominantly occupied by sonorant coronal sounds and /s/ (Harris 1983). No obstruent stops appear syllable-finally. In this position, they are normally weakened and spirantised (Mascaró 1991; Hualde and Eager 2016). In German, the coda can be occupied by plosives. The laryngeal contrast, however, between

fortis and lenis or voiced and voiceless obstruents is, according to phonological models, neutralised (cf. Vennemann 1972). Recent phonetic acoustic analyses have revealed that this neutralisation is incomplete, in that some subphonemic cues or compensatory strategies maintain the laryngeal contrast (Kleber et al. 2010). Reasons for the partial neutralisation have been discussed within the framework of word-based phonetics (Pierrehumbert 2002), where the phonetic implementation of words ending with a voiced plosive depends on phonological and morphological processes such as voicing assimilation and resyllabification across word boundaries. A paradigmatic effect is hence responsible, whereby a word with an underlying voiced obstruent that is neutralised can be pronounced as a voiced obstruent in another position in the paradigm (cf. Ernestus and Baayen for Dutch 2007). Another explanation is that phonetic details, related to the laryngeal contrast between voiced and voiceless obstruents, are strengthened (Avery and Rice, 1989). Vowel duration is such a phonetic cue. Acoustic analyses of the process in German have revealed a significantly shorter duration of vowels preceding word-final underlying voiceless obstruents in comparison to their voiced counterparts (Port et al. 1981; O'Dell and Port 1983). The detailed acoustic analysis by Port and O'Dell (1985) showed that even more subphonemic acoustic cues participate in the incomplete neutralisation of the laryngeal contrast in final obstruents. They analysed the duration of vowels preceding the final consonant, the final consonant closure duration, voicing into the closure (glottal pulse), and the duration of the release burst of the final consonant. In this study, vowel duration, glottal pulse duration and the burst release duration were found to differ significantly between voiced and voiceless final stops. Following some methodological criticism regarding laboratory conditions and the influence of orthography by Fourakis and Iverson (1984), the experimental procedure and the stimulus material were revised. In the subsequent study, Port and Crawford (1989) reported only burst release duration to be different between voiced and voiceless final stop consonants. Kleber et al. (2010) also studied the relevance of subtle phonetic detail for the maintenance of the laryngeal contrast in the perception of final obstruents. The authors did not find a clear categorical distinction between underlying voiced and voiceless obstruents but rather gradient deviations in phoneme perception depending on probabilistic co-occurrences, the phonetic environment, and the potential for resyllabification. Consequently, they interpreted their findings within probabilistic phonological frameworks, such as episodic or exemplar models. As previously mentioned, such models allow for the adaptation of the acoustic-perceptual space in response to a continuously updated density distribution of a phonological category such as voicing.

This is especially relevant in non-native speech, in that more experience and exposure imply more tokens to shape the acoustic-perceptual space. In other words, the more input tokens are available the higher the chance that even subtle phonetic detail contributing to the establishment of a phonological category can be used in perception. IAV can thus provide a cue for the establishment of phonological contrast as well as an indication of proficiency level.

1.3 Hypotheses

For the present study, the following predictions are derived, based on the reviewed literature and the differences in the production of final between Castilian Spanish and German:

1. Accommodation in the realisation of the laryngeal contrast in German final plosives takes place in conversations between Spanish L2 speakers of German with a native speaker of German
 - IAV will be observed in that speakers' accommodation patterns vary depending on the time of the recording within individual conversations.
2. Accommodation effects will depend on the proficiency level of the L2 learners of German.
 - The choice of L2 variants may be reduced in less proficient speakers compared to highly proficient speakers. Therefore, individual accommodation towards L2 variants and the maintenance of L1 variants is expected to depend on the proficiency level of the participant.
3. Accommodation effects will depend on the interlocutor. Non-native speakers will accommodate to a native speaker but not to a non-native speaker owing to a conscious desire to sound more native-like.
 - IAV will be observed in the choice of variants selected according to the interlocutor.

2 Materials and methods

2.1 Participants

Twelve female speakers of Castilian Spanish (aged 19–31; average 24) with no reported speech, language, or hearing problems participated in the experiment. The subjects were living in the Lake Constance area in Baden-Württemberg and were recruited from the University and the community college in Konstanz. In

order to control for multivarietal and multilingual influences, it was deemed necessary for parents to have been brought up in the Lake Constance area as well. Participants had to provide proof of a C1 level in German in order to be allocated to a group of highly proficient speakers (henceforth HP) and B1.2 level to be allocated to a group of speakers of low proficiency (henceforth LP). The allocation took place according to the guidelines and the assessment of the Common European Framework of Reference for Languages (Council of Europe 2001). Recordings took place over the period of the summer semester, 2018. Subjects were not paid, and participation was voluntary. The HP and LP speakers were paired up with three female control speakers: one control of high proficiency and one control of low proficiency, as well as one native speaker of German. The control speakers were matched in education and age to the two groups of the participants.

2.2 Procedure

Prior to the collaborative task, participants had to fill in a questionnaire eliciting socio-demographic data about their linguistic upbringing, language-use patterns for L1 and L2 and any additional language(s), the time-frame of acquisition such as age of acquisition, length of residence, attitudes towards German and stereotypes about native German speakers, as well as facts about motivation to acquire German. Speech data were obtained in a collaborative map-task (Figure 1).

Map-tasks allow for comparison between languages, a relatively high level of control of the segmental level and the collection of comparably natural speech, while keeping the task the same. The participants, taking on the role of tourists, were each guided through a map by all three control speakers. That means every speaker completed three procedurally identical map-tasks. The content of the maps, however, differed in the three versions. The maps of the tourists (participants) did not match exactly the maps of the guides (controls), in that some information was reserved for either the guides or the tourists only, so that both tourists and guides had to inquire about the maps according to a tasklist given to them prior to the map-task. The following tasks, for instance, were included: find out what films are playing at the cinema inquire about the daily menu in restaurants or bands playing in bars, newly acquired animals in the zoo, recently opened shops in the mall and new breeds of plants in the market garden. The procedure insured that segmentally comparable data could be obtained. The target words were only provided orthographically to the guide (control) as part of the answer to the inquiries. Participants only heard the

22 minutes; the shortest recording was 15 minutes, the longest 35 minutes. The total duration for the LP speakers was 171 minutes. The average duration of the map-task recordings in this case was longer, lasting 28.5 minutes on average, the shortest recording being 18 minutes long, the longest 34 minutes. The number of produced target words varied between the individual participants and is summarised in Table 1.

Table 1: Number of analysed monosyllabic words with final /t/ and /d/ for HP and LP speakers.

Speakers	Monosyllabic words with final /t/		Monosyllabic words with final /d/	
	Tat, Beet, Boot, Not, Rat, Hut, Brot, Mut, Naht		Kleid, Tod, Lied, Wied, Rad, Grad, Sud, Süd, Eid	
	HP	LP	HP	LP
1	18	15	22	12
2	13	12	17	16
3	22	12	12	15
4	16	19	14	13
5	12	14	17	16
6	9	13	15	10
TOTAL	90	85	97	82

2.3 Data management

In order to control for the influence of linguistic factors such as sentence-type, accent position within the utterance, and information structure, we only used target words realised in declarative utterances. Furthermore, only sentences with broad focus were selected, and target words had to be produced in pre-nuclear position (see below). Annotation and acoustic measurements were carried out using PRAAT (Boersma and Weenink 2009). Target words were segmented and extracted by the author. In order to see whether accommodation took place, tokens from the first 30% of the recordings and the last 30% of the recordings were selected corresponding to RecT 1 and RecT2 respectively. For the analysis of neutralisation in final plosives, target words with a final plosive were segmented and the final plosive was extracted. The following measurements were taken in the target words following Port and O'Dell (1985) and Port and Crawford (1989): the duration of the vowel preceding the final consonant, the final consonant closure duration, voicing into the closure (glottal pulse), and the duration of the release burst of the final consonant. In the present data, dura-

tion of the target items was time-normalised for the vowel-consonant sequence in PRAAT (Boersma and Weenink 2009) in order to control for the influence of speech and articulation rate. On the basis of auditory analysis an additional perceptually salient measurement was included: post-release voicing. The perceivable voiced release into a schwa was found frequently in tokens with an underlying voiced final plosive and in realisations produced by the speakers of low proficiency.

2.4 Statistical analysis

Statistical analyses were carried out using R (R Core Team 2013) and the lme4 package (Bates et al. 2015). Generalised linear mixed model analyses were carried out. This type of regression analysis includes both fixed effects (intended manipulation built into the experimental design) and random effects (not manipulated or experimentally controlled sources of variability) (cf. Baayen et al. 2008). The fixed effects in the present study are early and late recording time *RecT* (RecT1 and RecT2), consonant *Con* (/t/ and /d/), proficiency level *PL* (HP vs. LP) and interlocutor *IL* (LP vs. HP vs. German). The random effect was *Subject*. A series of models was compared adding or removing independent variables to examine the difference in deviance statistics (ΔD) and thereby to see if that improved the fit of the model to the data (Bates et al. 2015). The analyses initially included fully specified random effects. However, item effects were reduced first when the model did not converge, because item variances were, as expected from experience with controlled stimuli, much smaller than subject variances.

3 Results for the neutralisation of final voicing contrast in non-native speech

In order to see whether these subphonemic cues are actually available in the input of the control speakers, separate analyses of variance were performed on their data. The distinctiveness of a single dependent variable was examined at a time, i.e. closure duration, (CD), vowel length of the preceding vowel (VD), glottal pulsing during closure (GP), burst release duration (BRD), and post-release voicing (PRV). The results for the three controls show significant differences between the voiced and voiceless stops in word-final position. Most of the cues were found to differ in the control of low proficiency and the least

of them in the German control (see Appendices IIa, IIb, and IIc). A subsequent discriminant analysis was performed for all three data-sets to measure the extent of contrast, combining the five variables to best distinguish between the two groups in the data (voiced/devoiced). These analyses, summarised in Appendices IIIa, IIIb, IIIc, demonstrate that in the data of the German control a total of 53% of tokens overall were correctly classified as voiced or voiceless final consonants; 43% of the underlying voiceless tokens were correctly classified, voiced tokens being correctly identified in 62% of instances. 64% of the data of the highly proficient control were correctly identified: 58% of the voiceless and 69% of the voiced tokens. Finally, 75% of the data of the control of low proficiency were correctly identified: 81% of the voiceless and 69% of the voiced tokens.

Following the analysis of the control speakers' data, data-sets of HP and LP subjects were analysed. The statistical analysis revealed significant effects for only three of the five measurements obtained: closure duration (CD), burst release duration (BRD) and post-release voicing (PRV). Vowel duration (VD) and glottal pulse during closure (GP) did not differ significantly. Means for the two consonants, the difference between them and the standard deviation is summarised in Table 2. The means of the targets produced by control speakers are summarised in appendix I.

Table 2: Means, differences and standard deviation for vowel duration (VD in ms), closure duration (CD in ms), burst release duration (BRD in ms), glottal pulse during closure (GP in ms), and post release voicing (PRV in %) for HP, LP in intended productions of word-final /t/ and /d/.

Variable	Consonant	Means		Difference		Std. Dev	
		LP	HP	LP	HP	LP	HP
VD (ms)	/d/	154	176	-7	12	44	35
	/t/	161	164			45	42
CD (ms)	/d/	102	110	-2	-12	33	45
	/t/	104	98			35	47
GP (ms)	/d/	41	53	3	9	12	22
	/t/	38	44			16	25
BRD (ms)	/d/	71	64	7	-13	19	36
	/t/	64	77			21	32
PRV (%)	/d/	49	19	24	13	17	3
	/t/	25	6			8	5

As detailed in Table 2, the analysis is based on 187 HP (90 at RecT1; 97 at RecT2) and 167 LP items (85 at RecT1; 82 RecT2). Comparisons are based on 57 /t/ and 41 /d/ for the highly proficient control, 31 /t/ and 42 /d/ for the control of low proficiency and 57 /t/ and 61 /d/ for the German control, as detailed in Table 3.

Table 3: Number of items produced by the control of high proficiency (HPc), the control of low proficiency (LPc) and the native German control (G).

	HPc		LPc		G	
	RecT1	RecT2	RecT1	RecT2	RecT1	RecT2
/t/	21	36	21	10	27	30
/d/	19	22	25	17	31	30

3.1 Closure duration

Closure duration (CD) was normalised to standard procedure in order to avoid influences of utterance duration, speech tempo etc. The optimal mixed-effects model to explain the variation in CD includes *Con*, *RecT*, and *PL* as fixed effects, a random intercept for *Subject* and by-subject random slopes for *Con*, *RecT* and *PL*. *Con*, *RecT* and *PL* were dummy coded for /t/, RecT1 and LP as default levels of these variables, respectively (see Table 4).² Adding the factor interlocutor *IL* did not improve the model fit ($\Delta D=11$, $p > 0.1$).³ The dependent variable was *closure duration (CD)*.

The results summarised in Figure 2 show that /t/ is produced by all speakers, i.e. including control speakers, with the invariably longest closure duration and that this is unaffected by RecT. However, different patterns for the control speakers can be seen. Whilst the German control's CD does not differ between /t/ and /d/ realisations, the highly proficient control's CD in /d/ is shorter than in /t/. This is even more pronounced in the data of the control of low proficiency, only here the difference is significant (see Appendix IIb). Group data of HP speakers revealed an increase of CD in /d/ in conversations with both the highly proficient and the German control. The difference between CD in /t/ and /d/ remains comparably stable across the three map-tasks completed by the LP speakers.

² In logistic regression models, encoding independent variables as dummy variables facilitates the interpretation and calculation of the odds ratios, and increases the stability and the significance of the coefficients.

³ Deviance is $-2LL$ or negative two times the log likelihood. See Bates et al. (2015) for further details.

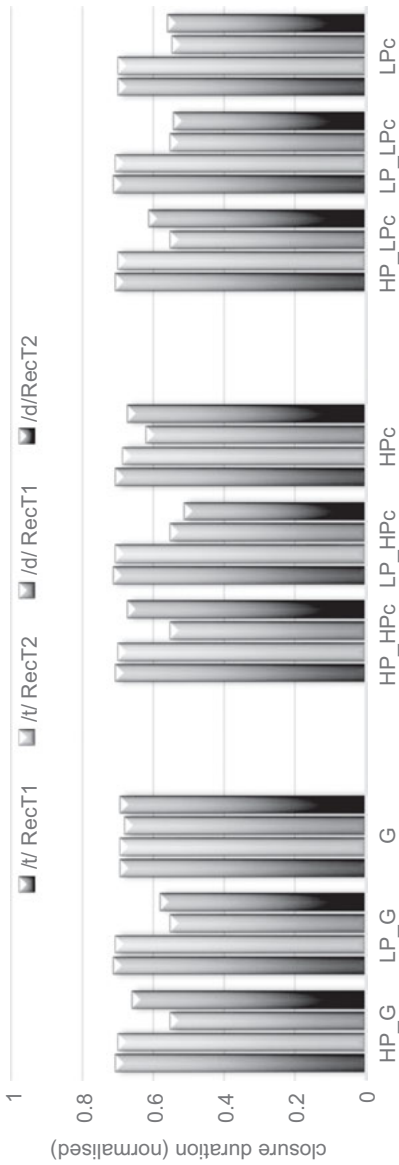


Figure 2: Normalised closure duration for three map-tasks of HPs and LPs with the German control (G left); the control of high proficiency (HPC middle) and the control of low proficiency (LPC right) for /t/ and /d/ at RecT1 and RecT2.

Table 4: Results of a mixed linear effects analysis of the consonant closure duration data obtained in the experiment. The default levels of the variables are as follows: Proficiency level PL (PL)=LP (vs. HP), Recording Time RT (RecT)=RecT1 (vs. RecT2), Consonant (con)=/t/ (vs. /d/), *Denotes $p < 0.05$.

Fixed Factor	Estimate	Std. Error	t value
(Intercept)	0.075	0.017	4.79*
PL	0.058	0.007	3.91*
RT	0.082	0.007	2.11*
Con	0.051	0.002	2.00*
PL:RT	0.024	0.001	2.01*
PL:Con	0.074	0.003	2.05*
RT:Con	-0.008	0.000	-2.07*
PL:RT:Con	0.014	0.003	2.39*

IAV in closure duration

In order to illustrate IAV in CD, Figure 3a plots the number of individual occurrences of /d/ recorded at RecT1 and RecT2 for all six HPs in interactions with the German control. Target CD as produced by the German control corresponds to white fill of the rectangle; i.e. the darker the shading the shorter in CD, the more non-target-like. The width of the rectangle corresponds to the number of occurrences. Figure 3b plots corresponding values obtained in the interactions between the six HPs with the control of low proficiency. Note that white rectangles in this plot refer to the average CD of the control of low proficiency. The two illustrations in Figure 3a and 3b show different patterns. In the course of the interactive task, CD appears to become more similar to the German control's CD and remains largely the same during the map-task with the control of low proficiency. In other words, IAV is observable in the accommodation effect in conversations with the German control but not with the control of low proficiency. By contrast, proportionally more dark shadings show that there is even divergence from the control of low proficiency in the realisation of CD, in that HPs' CD becomes longer (more L2 German target-like) even without a corresponding input. Comparing the two times frames in the interactive task with the German control, the portion of lighter rectangles dominates at RecT2, which means realisations become more target-like. In other words, within the same task, individuals produce more target-like production after receiving native input. However, the process of accommodation varies across the individuals. HP4 and HP6 for instance produce the most target-like productions at RecT2 but very few at RecT1. HP6's productions remain relatively stable in the conversation with the control of low proficiency whereas HP4 produces

increasingly CDs more similar to that of the control of low proficiency. She accommodates to an interlocutor of a lower proficiency level. HP3 on the other hand, shows little accommodation effects neither in the collaborative task with the German nor with the control of low proficiency. The number of least similar CDs even increases in the course of the map-task with the German control. The individual accommodation patterns suggest that a general tendency can be derived from group analyses but that individual performance has to be considered separately.

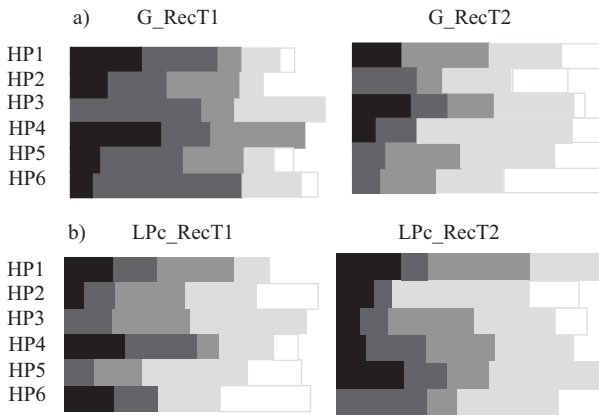


Figure 3a and 3b: Similarity of CD (dark corresponds to less similar, white corresponds to more similar) in individual HP speakers for /d/ with the German (G) and the low-proficient control (LPc) at the initial (RecT1) and the final recording time (RecT2), width of rectangles indicates the of tokens.

3.2 Burst release duration

Burst release duration was also normalised to standard procedure to avoid influences of utterance duration, speech tempo etc. The optimal mixed-effects model to explain the variation in burst release duration (BRD) includes *Con*, *RecT*, and *PL* as fixed effects, a random intercept for *Subject* and by-subject random slopes for *Con*, *RecT* and *PL*. *Con*, *RecT* and *PL* were dummy coded for /t/, RecT1 and LP as default levels of these variables, respectively (see Table 5). As opposed to the situation in the analysis of closure duration, adding the factor *IL* did improve the model fit ($\Delta D=55$, $p > 0.1$). The dependent variable was *burst release duration (BRD)*.

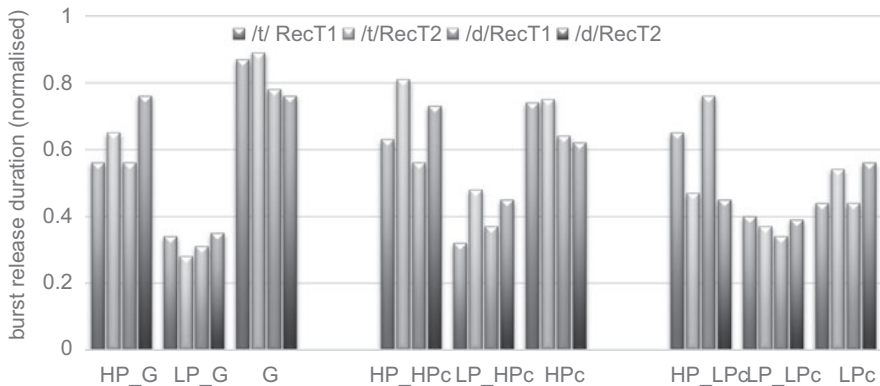


Figure 4: Normalised burst release duration for three map-tasks of HP speakers and LP speakers with the German control (G left); the highly proficient control (HPc middle) and the control of low proficiency (LPc right) for /t/ and /d/ at RecT1 and RecT2.

The results summarised in Figure 4 show that BRD in /t/ and /d/ differs in the data of the German and the highly proficient control. The control of low proficiency, realises both /t/ and /d/ at RecT2 with a longer BRD compared to RecT1. Since data are averaged, this may indicate accommodation of the control of low proficiency towards HP participants. Considering HP speakers, BRD at RecT2 is longer for /t/ and /d/ in measurements obtained during interactions, with both the German and the highly proficient control. LP speakers show a similar but less pronounced pattern in the task completed with the highly proficient control. In conversations of LP subjects with the German and the control of low proficiency, BRD does not appear to change according to the interlocutor.

IAV in Burst release duration

In order to illustrate IAV in burst released duration again the BRDs of /d/ obtained in the collaborative tasks of HPs with the German control and the control of low proficiency respectively were used (Figure 5a and b). The number of individual occurrences of /d/ recorded at RecT1 and RecT2 for individual HPs corresponds to the width of the individual rectangles. Target BRD as produced by the German control corresponds to white fill of the rectangle in Figure 5a. That means, the darker the shading the less similar, hence shorter, the BRD of the individual tokens produced by the six HPs compared to the BRD of the German control. Figure 5b plots corresponding values obtained in the interactions between HPs and the control of low proficiency with white referring to the average BRD for

Table 5: Results of a mixed linear effects analysis of the burst release duration data obtained in the experiment. The default levels of the variables are as follows: Proficiency level PL (PL)=LP (vs. HP), Interlocutor (IL)=control of low proficiency (LPc) vs. highly proficient control (HPc) vs. German control (G), Consonant (con) =/t/ (vs. /d/), RecTime (RT)=RecT1 (vs. RecT2), * Denotes $p < 0.05$.

Fixed Factor	Estimate	Std. Error	t value
(Intercept)	0.82	2.078	2.83*
PL	-0.18	0.006	-2.08*
IL(LPc/G)	-0.15	0.001	-2.17*
IL(LPc/HPc)	0.12	0.015	2.1*
RT	0.21	0.005	2.10*
Con	-0.12	0.002	-2.54*
PL:IL(LPc/G)	0.08	0.003	2.31*
PL:IL(LPc/HPc)	0.1	0.002	3.12*
PL:RT	0.03	0.001	2.22*
PL:Con	0.21	0.001	1.82
IL(LPc/G):RT	0.05	0.002	2.37*
IL(LPc/HPc):RT	0.1	0.003	2.18*
IL(LPc/G):Con	0.07	0.002	2.77*
IL(LPc/HPc):Con	0.01	0.007	2.21*
RT:Con	0.13	0.002	2.18*
PL:IL(LPc/G):RT	0.11	0.009	2.03*
PL:IL(LPc/HPc):RT	0.02	0.009	1.99
PL:IL(LPc/G):Con	-0.01	0.006	-3.93*
PL:IL(LPc/HPc):Con	0.07	0.014	4.45*
IL(LPc/G):RT:Con	0.08	0.001	2.11*
IL(LPc/HPc):RT:Con	0.07	0.019	2.99*
PL:IL(LPc/G):RT:Con	0.01	0.002	2.03*
PL:IL(LPc/HPc):RT:Con	0.03	0.019	2.39*

the control of low proficiency. The two illustrations show similar patterns for conversations with the German and the control of low proficiency. During the map-task, BRD of HP speakers varies according to the interlocutor. It becomes longer in interaction with the German control and shorter in interaction with the control of low proficiency, apparent in the proportionally more white shadings in items recorded at RecT2 compared to RecT1. Generally, the number of darker shadings is higher in interactions with the control of low proficiency compared to those with the German control, except for speaker HP5. Here the number of non-target-like BRD in the conversation with the German control dominates in tokens obtained at RecT2 indicating divergence. However, in the interaction with the control of low proficiency, BRD becomes more similar to that of the interlocu-

tor, as for most of the other participants. Considering HP3, the participant whose CD showed the least effect of accommodation, her BRD becomes more similar to the BRD of the German control. In the conversation with the control of low proficiency, however, the distribution of more or less similar BRD is comparable at RecT1 and RecT2. HP4, the participant who showed accommodation effects in CD independent of the interlocutor, clearly accommodates in the production of BRD towards the German control. However, her BRD becomes less similar to that of the control of low proficiency, indicating that the BRD increases instead of decreasing during the course of the interaction, hence becomes German even without the respective immediate input.

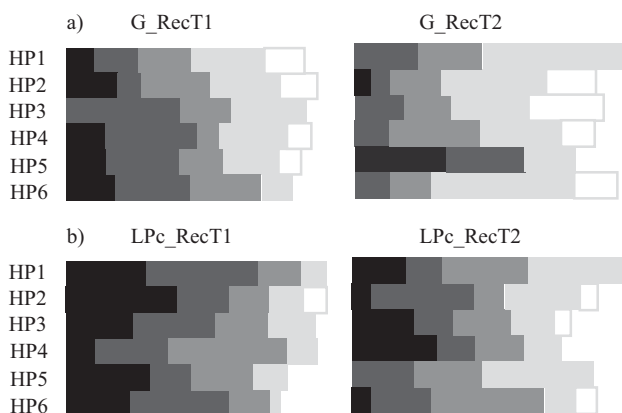


Figure 5a and b: Similarity of BRD (dark less similar, white target-like) in individual HP speakers for /d/ with the German (G) and the control of low proficiency (LPc) at the initial (RecT1) and the final recording time (RecT2). Width of rectangles indicate the number of tokens falling into the similarity range.

3.3 Post-release voicing

Post-release voicing (PRV) has been added as dependent variable after acoustic and auditory analysis of the data. It refers to an audible schwa-realisation accompanied by a short realisation of the burst release. Three possible forms of realisation have been observed in the data as illustrated in Figure 6, a schwa-release, a voiceless aspirated release and a voiceless non-aspirated release.

PRV entered into the model as proportion of all realisations of /t/ and /d/ respectively. The optimal mixed-effects model to explain the variation in PRV includes *Con*, *RecT*, and *PL* as fixed effects, a random intercept for *Subject* and

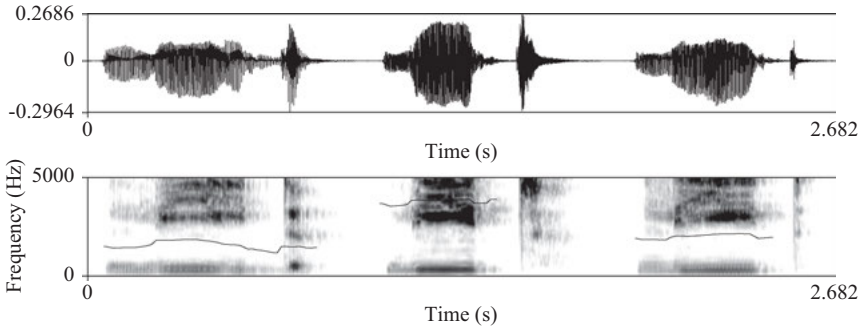


Figure 6: Examples of three final /d/ realisation in <Lied> as [li:də], [li:tʰ], [li:t].

by-subject random slopes for *Con*, *RecT* and *PL*. *Con*, *RecT* and *PL* were dummy coded for /t/, *RecT1* and *LP* as default levels of these variables, respectively. Adding the factor *IL* did improve the model fit ($\Delta D=29$, $p > 0.01$). Results are illustrated in Figure 7 and show that PRV occurs most frequently following the burst release in /d/. Furthermore, the German control does not produce any PRV, the highly proficient control only in 9% and 7% following the burst release in /d/ at *RecT1* and *RecT2* respectively. The control of low proficiency, however, produced one third of /t/ and approximately half of /d/ with PRV and slightly less frequently at *RecT2* compared to *RecT1*. The group of HP speakers produced consistently less PRV than the LP speakers and most frequently in target words with final /d/ in conversations with the control of low proficiency. Here, 30% of word-final /d/ are followed by PRV independent of the time of recording. Evidence for accommodation can be found in conversations with the German and

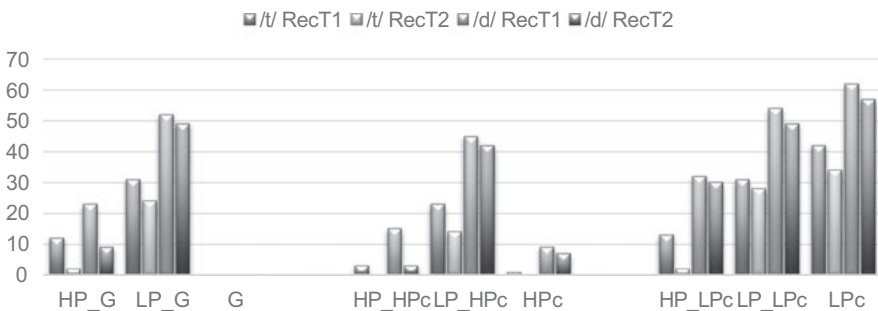


Figure 7: Percentage proportion of post release voicing for three map-tasks of HP speakers and LP speakers with the German control (G left); the highly proficient control (HPc middle) and the control of low proficiency (LPc right) for /t/ and /d/ at *RecT1* and *RecT2*.

the highly proficient control in that the number of PRV decreases during the collaborative tasks in data of both HP and LP speakers, but to a lesser degree in the latter. LP speakers produced 40% to 50% of /d/ and 15% to 30% of /t/ tokens with PRV. The number of occurrences is lowest in conversations with the highly proficient control.

Table 6: Results of a mixed linear effects analysis of post release voicing obtained in the experiment. The default levels of the variables are as follows: Proficiency level PL (PL)=LP (vs. HP), Interlocutor (IL)=control of low proficiency (LPc) vs. highly proficient control (HPc) vs. German control (G), Consonant (con) =/t/ (vs. /d/), RecTime (RT)=RecT1 (vs. RecT2), * Denotes $p < 0.05$.

Fixed Factor	Estimate	Std. Error	t value
(Intercept)	97.5	14.3	12.66*
PL	28.6	7.2	2.07*
IL(LPc/G)	13.9	4.7	2.11*
IL(LPc/HPc)	-14.1	3.3	-2.00*
RT	12.1	4.1	2.05*
Con	19.1	3.8	2.82*
PL:IL(LPc/G)	-23.3	5.8	-3.22*
PL:IL(LPc/HPc)	-17.2	3.1	-1.34
PL:RT	12.4	3.1	2.11*
PL:Con	23.1	4.7	2.51*
IL(LPc/G):RT	8.4	2.6	1.98
IL(LPc/HPc):RT	-11.9	2.1	2.03*
IL(LPc/G):Con	17.3	3.6	4.24*
IL(LPc/HPc):Con	9.2	2.3	2.67*
RT:Con	-5.2	2.2	-1.87
PL:IL(LPc/G):RT	8.8	3.4	2.12*
PL:IL(LPc/HPc):RT	7.9	2.7	1.99
PL:IL(LPc/G):Con	-6.5	3.2	-2.36*
PL:IL(LPc/HPc):Con	-9.2	4.5	-1.91
IL(LPc/G):RT:Con	11.1	2.8	2.01*
IL(LPc/HPc):RT:Con	-9.6	3.3	-2.21*
PL:IL(LPc/G):RT:Con	6.3	2.8	1.95
PL:IL(LPc/HPc):RT:Con	11.3	3.7	2.11*

IAV in post release voicing

With regard to /t/, most of the HP speakers produce no PRV following the release and if they do, the PRV occurred most frequently in the map-task carried out with the control of low proficiency. Most of the PRV instances following /t/ are produced by HP6 (75% of all occurrences of PRV). The remaining 25%

are distributed nearly equally between HP2 and HP5. HP1, HP3 and HP4 do not produce any PRV following the release of /t/. Most participants, however, produce all three variants at the end of words with final /d/, independent of the interlocutor, as illustrated for speaker HP1 in Figure 8. HP6 accounts again for the largest share of PRV (42% of all occurrences). As illustrated in Figure 9, she produces German-like targets in the conversation with both the German and the highly proficient control at RecT2. This illustrates accommodation because the same target word was produced at RecT1 with a voiced plosive [d] and PRV [də] in conversation with the German and the highly proficient control, respectively. 20 % of PRV following /d/ are found in the data of HP3. The same speaker did not produce any PRV in the realisation of /t/, which may be an indication of an established contrast in the representation of /t/ and /d/. HP1 produces target-like productions across all map-tasks. However, there are exceptions illustrated in Figure 8, where she produces voiced and voiceless unaspirated plosives. The two variants only occur depending in the task completed with the and the controls of high and low proficiency. This may also be the result of accommodation to the respective interlocutor, suggesting that also non-target-like productions can trigger accommodation. It also suggests that neutralisation may be incomplete, and that a contrast between /t/ and /d/ is implemented if perceived in the interlocutor's input. The remaining 40% of PRV in /d/ are nearly equally distributed between HP1, HP2, HP4 and HP5.

With regard to the group of LP speakers, the distribution of PRV is more balanced between the speakers, and accommodation effects cannot be observed, either in the group data or in the individual productions. Both target-like and non-target-like productions occur independent of recording time and interlocutor as illustrated in Figure 10 for speaker LP2. These seemingly randomly produced variants indicate a lack of representation of the contrast for final /t/ and /d/.

Figure 11 shows examples for LP5. She produces target-like final /d/ at the beginning of the collaborative tasks with both the German and the control of low proficiency, but PRV at RecT2 with the highly proficient control, i.e. in a conversation with comparable little PRV in the input.

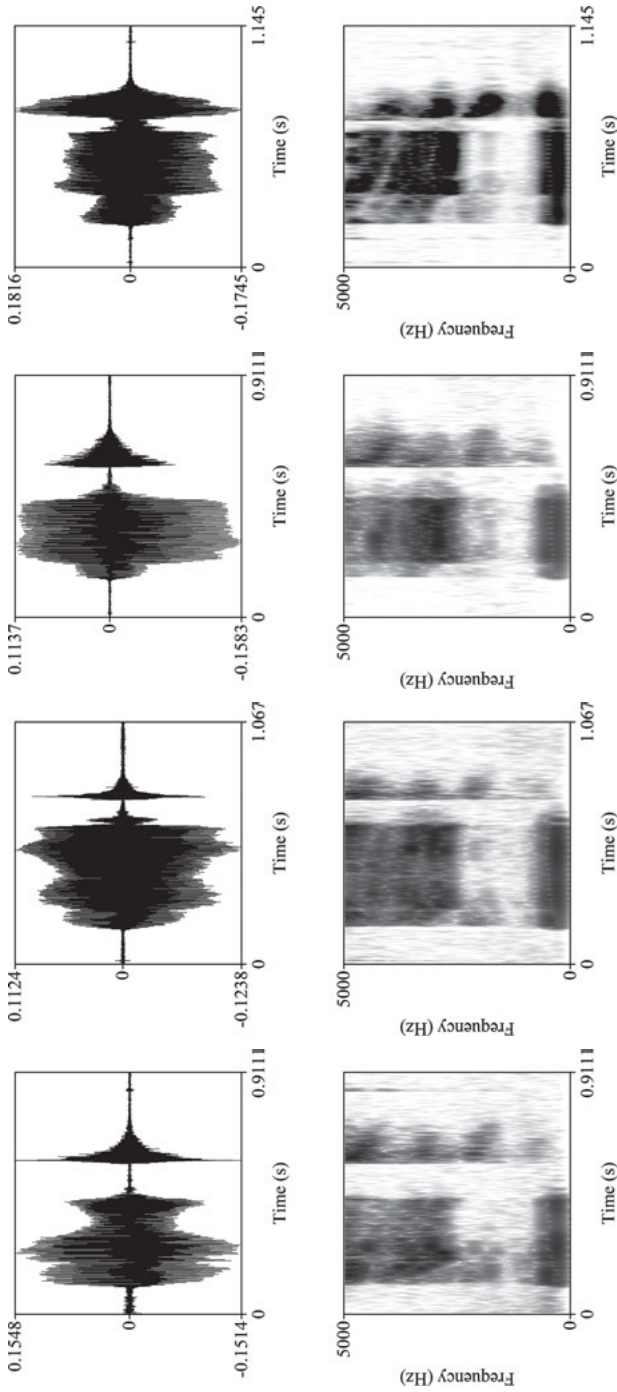


Figure 8: Realisations of HP1 from left to right [li:tʰ] and [li:tʰ] with the German control at RecT1 and RecT2 respectively, with the control of low proficiency [li:d], and the highly proficient control [li:t] at RecT1.

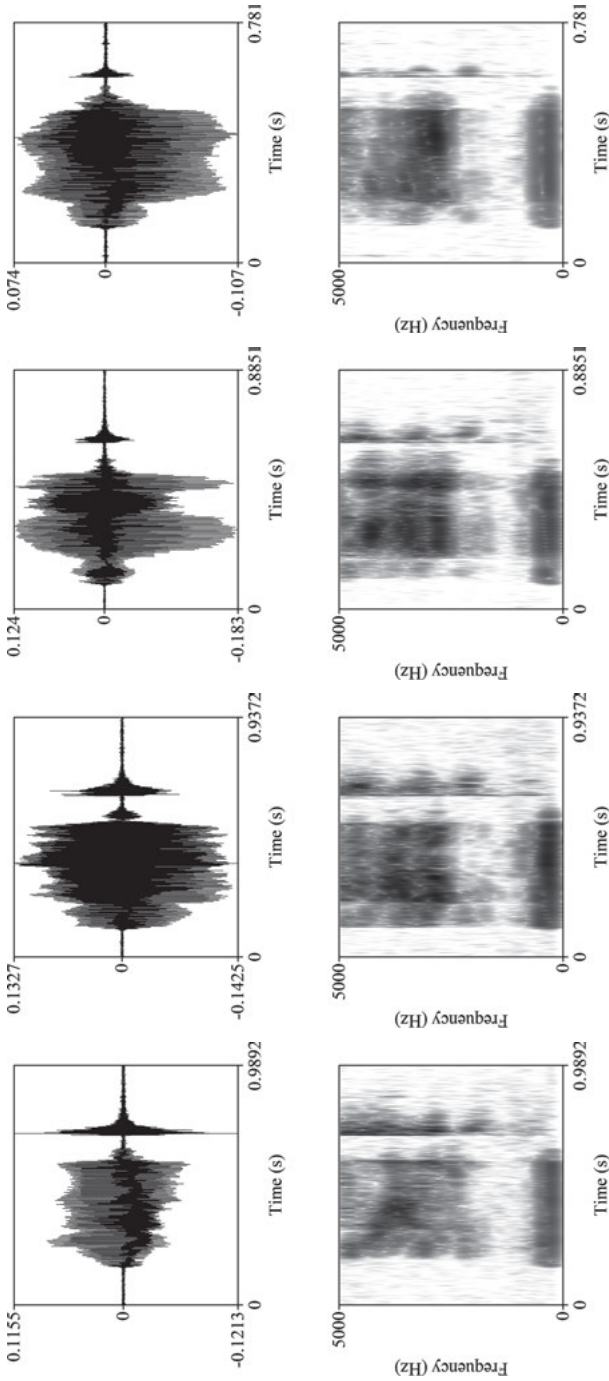


Figure 9: Realisations of HP6 from left to right with the German control [li:tʰ] at RecT2, with the highly proficient control [li:tʰ] and with the highly proficient control [li:də] at RecT1.

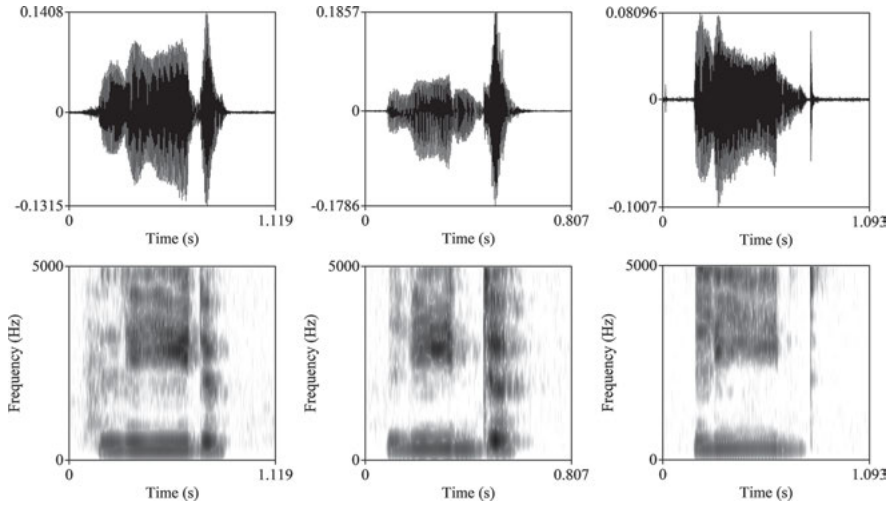


Figure 10: Realisations of LP2 from left to right with the highly proficient control [li:də], with the German control [li:də] both at RecT2, and with the control of low proficiency [li:t] at RecT1.

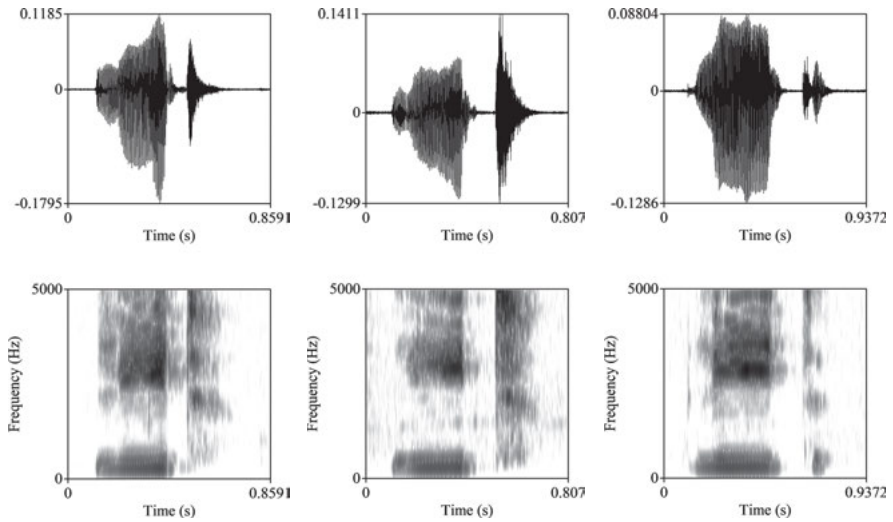


Figure 11: Realisations of LP5 from left to right with the German control [li:tʰ] at RecT1, with the control of low proficiency [li:tʰ] at RecT1, and with the highly proficient control [li:də] at RecT2.

4 Discussion

The results of the present study show that accommodation effects can be found in non-native speech confirming Hypothesis 1. Native Spanish learners of L2 German are found to accommodate in the production of voiced and voiceless final consonants. The laryngeal contrast of plosives in word-final position is considered to be neutralised in German, albeit not completely. Several studies show that some subphonemic cues such as duration of the preceding vowel, closure and burst release duration as well as glottal pulsing differ in voiced vs. voiceless final stops (Port, Mitleb, and O'Dell 1981; Port and O'Dell 1985; Port and Crawford 1989; Kleber et al. 2010,). These cues were also found in the data of the control interlocutors of the present study but in varying degrees. The German control produced the smallest number of subphonemic cues differentiating between underlying /d/ and /t/ in word-final position (see Appendix I). The only cue that the highly proficient and the German control speaker used to establish the laryngeal contrast in word-final plosives is a difference in burst release duration. The control of low proficiency produced differences in glottal pulsing, closure durations, burst release duration, and post-release voicing for word-final /d/ and /t/ (see Appendices IIa-c). In order to confirm the hypothesis that non-native speakers accommodate towards an interlocutor, we would expect HP and LP speakers to increase a difference of burst release duration in conversation with the highly proficient and the German control and to decrease differences in all other acoustic cues. In conversations with the control of low proficiency, we would expect glottal pulsing, burst release duration, closure duration and post-release voicing to be aligned. Note, though, that burst release duration would be expected to decrease in interactions with the control of low proficiency.

The effects found in the data do not correspond completely with these expectations. Glottal pulsing and vowel duration did not show any accommodation effects. However, effects were found for burst release duration, post-release voicing and closure duration, confirming Hypothesis 1. Overall, accommodation effects were more clearly observable in the data of the highly proficient speakers as compared to the speakers of low proficiency, confirming Hypothesis 2. The highly proficient speakers were also found to accommodate more towards the highly proficient and the German control. However, since highly proficient speakers also accommodated to the post-release voicing of the control of low proficiency, Hypothesis 3 can only partly be confirmed. An explanation based on perceptual salience appears to be suitable to account for these findings, as proposed for dialect accommodation by MacLeod (2012). She found that when speakers of two varieties of Spanish were aware of specific variants of their own and the other dialect, motivation as well as magnitude of the change influenced

the change; in other words, perceptually more salient cues were more likely to be accommodated. For the present study, the ability to perceive and to implement fine phonetic detail, i.e. the perceived magnitude, most likely differs because of the proficiency level, as well as other input and usage patterns.

Another consideration is the social motivation of non-native speakers. The Communication Accommodation Theory (Giles et al. 1991) deals with such issues. Within the framework, speakers converge (or adverage as it should more correctly be called since it is a unilateral process), maintain or diverge strategically in order to adjust social distance according to situational requirements. Highly proficient speakers did not align to non-native controls to the same extent as they did to the German control. This suggests that the accommodation to non-native interlocutors may be blocked by a native bias. Zajac and Rojczyk (2014), for instance, found that Polish learners of English aligned with native English speech but not with other Polish speakers of English. Hwang et al. (2015) similarly showed that Korean learners of English aligned with a native English speaker but not with non-native, Korean-accented English spoken by a Korean native speaker. These studies, in line with others (e.g. Chiba et al. 1995; Dalton-Puffer et al. 1997), suggest that a native bias influences accommodation of L2 speakers, since non-native speakers generally have the desire to be perceived as more native-like and therefore avoid phonetic details of sounds that enhance accentedness. However, in the present study, there are patterns contradicting the native bias. Highly proficient speakers were found to accommodate to the control of low proficiency who produces a considerable number of items with post-release voicing. In the interaction with the control of low proficiency, highly proficient speakers also produce a relatively high number of post-release voiced items. A similarity affiliation effect could be responsible (Enzina 2018). Both linguistic background and the fact that the Spanish speakers are outsiders in relation to the speech community may trigger social affiliation to a linguistically and socially similar outsider group. Since post-release voicing is a perceptually more salient cue than temporal subphonemic cues, it can possibly be consciously modulated. Temporal features of the plosives are generally less likely to be controllable even with sufficient practice.

Speakers of low proficiency show very little sign of accommodation across all measurements. The lack of LP speakers' alignment to the control of high proficiency and the German control may be due to the failure to map perceived acoustic cues to motor action in the production of sounds, so that even perceived differences cannot readily be aligned. Post-release voicing is an acoustic cue for which speakers of low proficiency show alignment, in that the number of post-release voiced items decreases in interaction with both the highly proficient and the German control. This supports the assumption that post-release voicing is

an acoustic cue that can more easily be identified and modified in order to be mapped onto the relevant articulatory performance. Accommodation effects have also been found in burst release duration in the data of speakers of low proficiency. The effects, however, were only found in interactions with the highly proficient control and not with the German control. This may be due to both similarity affiliation and perceptual fluency (Reber et al. 2004). More target-like productions of the highly proficient control are more accessible to the speakers of low proficiency because of their familiarity with the accent. Alignment to the native speaker, however, may involve extra demands that the second language production imposes on the L2 speakers and hence block a possible alignment (Kim et al. 2011). A necessary follow-up would involve a test on how perceptually salient the variables investigated here really are for the identification of a non-native accent and thus for associated social features of speakers using those variables (see for studies on regional dialects and ethnicity Graff, Labov, and Harris 1986; Torbert 2004, 2010). Perceptual salience may be indirectly mirrored in alignment towards a non-native speaker. The more salient differences are between acoustic phonetic cues of the target language in the realisation of individual sounds, the more likely speakers are to align with them. Meaningful markers of a language as perceived by an individual are those differences that are most salient. It seems natural that salience is determined by the acoustic space and patterns of language use, which create the grounds for IAV, and that non-native speakers will attempt the greatest impact of accommodation by implementing changes of the most salient differences between their native and the target language.

One remaining issue to be addressed in the discussion of the overall results is whether the observed accommodation effects are automatic or socially motivated. Previous results revealed that automatic accommodation is more likely to occur because of immediate exposure to recent and/or novel tokens. The effects are likely to be transient whereas socially motivated affiliation is more permanent (Enzina 2018). This may also be related to perceptual salience. Acoustic cues that are less perceivable in isolation, such as the temporal cues of closure duration and burst release duration accommodate only automatically because of priming by the interlocutor speech. Lack of conscious perception of these isolated cues hinders their entrenchment and storage, so that they remain volatile. Conscious social motivation on the other hand leads to an intentional accommodation of perceivable acoustic cues such as post-release voicing or the lack thereof. The L2 speakers desire to speak in a native-like manner in a L2 community because they want to affiliate with a native speaker who is an in-group member of the speech community in relation to which the L2 speaker is an outsider. The interaction between the two mechanisms most likely triggers intra-individual variation addressed in the remaining section.

5 Conclusions: IAV in accommodation

The analysis revealed considerable variation within individual speakers that can be best explained by the adoption of an exemplar-based approach. The fundamental assumptions of various exemplar-based models are the same (Johnson 2005). Exemplars, i.e. input tokens, are stored and categorised on the basis of similarity to other tokens previously stored.

The retrieval of individual tokens is influenced by an exemplar's resting activation level. Speakers thus use variants hence, they select exemplars from pre-existing memory that belong to their acoustic space or phonetic repertoire (Pierrehumbert 2001). The activation level in turn is influenced by short-term factors such as recency and novelty but also by indexicalisation according to social preferences, which are likely to have a more long-lasting effect. However, acoustic cues may be weighed differently because of the speakers' individual experiences and their individual habitual hearing, so that the shape of the acoustic space of one individual can never resemble that of another individual. The acoustic space dynamically changes during interaction and thus also the activation level. At the same time, attention to form and function of individual variants may shift during conversations because of changes in perceptual salience. For instance, novelty effects have previously been described (cf. Goldinger 1998; Luce and Pisoni 1998; Johnson et al. 1999) and imply that a novel exemplar has fewer competitors because speakers have comparably little experience. Items that are more likely to be activated because they are novel and also more recent, however, become by definition less novel and recent during the course of the interaction. Such dynamic changes in the interaction determine the selection of specific exemplars leading to IAV. At the same time, social awareness interacts with those short-term influences and equally affect the selection of specific exemplars.

Considering the model of IAV presented in Chapter 2, IAV as a result of accommodation in non-native speech is functionalised. More or less target-language-like productions are perceived as more or less accented and thereby reveal relevant information about the speaker and her social and linguistic background (Atagi and Bent 2015, Dragojevic and Giles 2016). Socially motivated accommodation in non-native speech is conscious and intended, because speakers deliberately and purposefully select variants in order to signal specific affiliation to or dissociation from a group or another individual. Automatic accommodation, influenced by factors such as novelty, similarity, frequency and recency, on the other hand, is unconscious and unintended (Hay et al 2006; Warren et al. 2007; Enzinna 2018).

IAV in accommodation in non-native speech may also be due to the instability of the exemplar representation as well as the various acoustic cues that need to be implemented in speech production. This would also explain the influence of the

proficiency level. As mentioned above, exemplar theory assumes that everything an individual has even perceived is part of the acoustic repertoire and available for production. The selection depends on the level of activation and density of representation in terms of an attractor space. Highly proficient speakers have naturally encountered more input than speakers of low proficiency have, so that the input during the map task has a greater impact on highly proficient speakers. During the map-task the individuals hear the target-language variants (which are also the less common variants; the more common variants are those of the first language) and their activation will consequently increase and potentially incline them to choose these variants for production, which in turn results in the accommodation towards the interlocutor. Such observations should be considered in proposals regarding the implementation of accommodation in language or more specifically pronunciation teaching (cf. Garrod and Pickering 2013; Trofimovich 2016).

Overall, the results of the study provide evidence for accommodation effects in non-native speech. They also suggest that accommodation is the result of proficiency in that a certain number of perceptually represented items have to be available in order to allow for the production of target-like variants. Lastly, perceptual salience appears to account for the obtained results. That means the present data support both an automatic theory of accommodation in combination with social factors that can be employed both intentionally and unintentionally.

References

- Adamson, H. Douglas & Vera M. Regan. 1991. The Acquisition of Community Speech Norms by Asian Immigrants Learning English as a Second Language: A preliminary study. *Studies in Second Language Acquisition* 13(1). 1–22.
- Atagi, Eriko & Tessa Bent. 2015. Relationship between listeners' nonnative speech recognition and categorization abilities, *J. Acoust. Soc. Am.* 137(1). EL44–EL50.
- Avery, Peter & Keren Rice. 1989. Segment structure and coronal underspecification. *Phonology* 6, 179–200.
- Baayen, R. Harald, Doug Davidson & Douglas Bates. 2008. Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language* 59. 390–412.
- Bates, Douglas, Martin Mächler, Ben Bolker & Steve Walker. 2015. Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software* 67(1). 1–48.
- Bavelas, Janet Beavin, Alex Black, Charles R. Lemery & Jennifer Mullett. 1986. I show how you feel: motor mimicry as a communicative act. *Journal of Personality and Social Psychology* 50(2). 322.
- Beaver, David & Henk Zeevat. 2007. Accommodation. In Gillian Ramchand & Charles Reiss (eds.), *The Oxford handbook of linguistic interfaces*, 503–538. Oxford, UK: Oxford University Press.

- Bernieri, Frank & Robert Rosenthal. 1991. Interpersonal coordination: behaviour matching and interactional synchrony. *Fundamentals of Nonverbal Behavior*. 401–431.
- Bock, Kathryn. 1986. Syntactic persistence in language production. *Cognitive Psychology* 18. 355–387.
- Boersma, Paul & David Weenink. 2009. *Praat: doing phonetics by computer* (Version 5.1.13).
- Bourhis, Richard & Howard Giles. 1977. The Language of Intergroup Distinctiveness. In Howard Giles (eds.) *Language, Ethnicity and Intergroup Relations*, 119–135, London, UK: Academic Press.
- Bozema, Pajak & Roger Levy. 2014. The role of abstraction in non-native speech perception. *Journal of Phonetics* 46. 147–160.
- Branigan, Holly, Martin Pickering, Jamie Pearson & Janet McLean. 2010. Linguistic Alignment between People and Computers. *Journal of Pragmatics* 42. 2355–2368.
- Brennan, Susan. 1996. Lexical entrainment in spontaneous dialog. *Proceedings of ISSD*, 41–44.
- Bunz, Ulla & Scott Campbell. 2004. Politeness Accommodation in Electronic Mail. *Communication Research Reports* 21(1). 11–25.
- Burin, Léa & Nicolas Ballier. 2017. Accommodation in learner corpora: A case study in phonetic convergence. Modes et stratégies d'accommodation. *Anglophonia. French Journal of English Linguistics* [online].
- Chang, Charles. 2013. A novelty effect in phonetic drift of the native language, *Journal of Phonetics* 41(6). 520–533.
- Chiba, Reiko, Hiroko Matsuura & Asako Yamamoto. 1995. Japanese attitudes toward English accents. *World Englishes*, 14(1). 77–86.
- Clyne, Michael. 2003. *Dynamics of Language Contact. English and Immigrant Languages*. Cambridge: Cambridge University Press.
- Chartrand, Tanya & John Bargh. 1999. The chameleon effect: the perception – behavior link and social interaction. *Journal of Personality and Social Psychology* 76(6). 893.
- Condon, William & Louis Sander. 1974. Synchrony demonstrated between movements of the neonate and adult speech. *Child Development*, 456–462.
- Council of Europe. 2001. *Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge, U.K: Press Syndicate of the University of Cambridge.
- Dalton-Puffer, Christiane, Gunther Kaltenboeck & Ute Smit. 1997. Learner attitudes and L2 pronunciation in Austria. *World Englishes* 16(1). 115–128.
- Danescu-Niculescu-Mizil, Cristian, Michael Gamon & Susan Dumais. 2011. Mark My Words! Linguistic Style Accommodation in Social Media. *Proceedings of WWW*. 745–754.
- Dias, James & Lawrence Rosenblum. 2016. Visibility of speech articulation enhances auditory phonetic convergence, *Attention Perception & Psychophysics* 78(1). 317–333.
- Dijksterhuis, Ap & John A. Bargh. 2001. The perception-behavior expressway: Automatic effects of social perception on social behavior. In Mark P. Zanna (ed.), *Advances in experimental social psychology*, Vol. 33 (p. 1–40). Academic Press.
- Dragojevic, Marko & Howard Giles. 2016. I don't like you because you're hard to understand: The role of processing fluency in the language attitudes process, *Human Communication Research* 42. 396–420.
- Dragojevic, Marko, Howard Giles & Jessica Gasiorek. 2015. Communication accommodation theory, In Charles Berger & Michael Roloff, *The International Encyclopedia of Interpersonal Communication* 1. 176–196. Hoboken, NJ: Blackwell/Wiley.
- Dunstan, Stephany Brett. 2010. Identities in transition: The use of AAVE grammatical features by Hispanic adolescents in two North Carolina communities. *American Speech* 85(2). 185–204.

- Edlund, Jens, Mattias Heldner & Julia Hirschberg. 2009. Pause and Gap Length in Face-to-Face Interaction. *Proceedings Interspeech 2009*. 2779–2782.
- Enzinna, Naomi. 2018. *Automatic and social effects on accommodation in monolingual and bilingual speech*. Cornell University dissertation.
- Ernestus, Mirjam & Harald Baayen. 2007. Intraparadigmatic effects on the perception of voice. In Jeroen van de Weijer & Erik Jan van der Torre (eds.), *Voicing in Dutch (De)voicing – Phonology, Phonetics and Psycholinguistics*, 153–173. Amsterdam/Philadelphia: John Benjamins.
- Fabiano-Smith, Leah, Navin Viswanathan & Annie Olmstead. 2010. Short term phonetic and phonological changes during Spanish instruction. *Journal of the Acoustical Society of America* 128(4). 2486.
- Ferguson, Charles. 1975. Toward a characterization of english foreigner talk. *Anthropological Linguistics* 17(1). 1–14.
- Fernald, Anne, Traute Taeschner, Judy Dunn, Mechthild Papousek, Bénédicte de Boysson-Bardies & Ikuko Fukui. 1989. A cross-language study of prosodic modifications in mothers' and fathers' speech to preverbal infants. *Journal of Child Language* 16(3). 477–501.
- Ferrara, Kathleen. 1991. Accommodation in therapy. In Howard Giles, Justine Coupland & Nikolas Coupland (eds.), *Contexts of Accommodation: Developments in Applied Sociolinguistics Studies in Emotion and Social Interaction*, 187–222.
- Flege, James Emil. 1995. Second Language Speech Learning: Theory, findings, and problems. In Winifred Strange (ed.), *Speech perception and linguistic experience: Issues in cross-language research*. 233–277. Timonium, MD: York Press.
- Fourakis, Marios & Gregory K. Iverson. 1984. On the 'incomplete neutralisation' of German final obstruents. *Phonetica* 41(3). 140–149.
- Fowler, Carol, Julie Brown, Laura Sabadini & Jeffrey Weihing. 2003. Rapid access to speech gestures in perception: Evidence from choice and simple response time tasks. *Journal of Memory and Language* 49(3). 396–413.
- Fowler, Carol & Bruno Galantucci. 2005. The relation of speech perception and speech production. In David B. Pisoni & Robert E. Remez, *The Handbook of Speech Perception*, 632–652. Malden, MA: Blackwell Publishing Ltd.
- Garrod, Simon & Martin J. Pickering. 2007. Alignment in Dialogue. In M. Gareth Gaskell (ed.) *Oxford Handbook of Psycholinguistics*, 443–451. Oxford: Oxford University Press.
- Garrod, Simon & Martin J. Pickering. 2013. Dialogue: Interactive alignment and its implications for language learning and language change. In *The Language Phenomenon*, 47–64. Berlin: Springer.
- Giles, Howard 1973. Accent mobility: A model and some data. *Anthropological Linguistics* 15. 87–109.
- Giles, Howard 1977. The language of intergroup distinctiveness. In Howard Giles (ed.), *Language, Ethnicity, & Intergroup Relations*, 119–135. London: Academic Press.
- Giles, Howard & Patricia Johnson. 1987. Ethnolinguistic identity theory: A social psychological approach to language maintenance. *International Journal of the Sociology of Language* 68. 69–99.
- Giles, Howard & Nikolas Coupland. 1991. *Language: Contexts and Consequences*. Milton Keynes: Open University Press.
- Giles, Howard, Nikolas Coupland & Justine Coupland. 1991. Accommodation theory: communication, context, and consequence. *Contexts of Accommodation: Developments in Applied Sociolinguistics*, 1–68.

- Giles, Howard, & Tania Ogay. 2007. Communication accommodation theory, in Bryan B. Whaley & Wendy Samter (eds.) *Explaining Communication: Contemporary Theories and Exemplars*, 293–310. Mahwah, NJ: Lawrence Erlbaum.
- Gluszek, Agata & John F. Dovidio. 2010. The way they speak: A social psychological perspective on the stigma of nonnative accents in communication, *Personality and Social Psychology Review* 14(2). 214–237.
- Goldinger, Stephen D. 1998. Echoes of Echoes? An Episodic Theory of Lexical Access. *Psychological Review* 105. 251–279.
- Graff, David, William Labov, Wendell A. Harris. 1986. Testing listeners' reactions to phonological markers of ethnic identity: a new method for sociolinguistic research. In David Sankoff (ed.), *Current Issues in Linguistic Theory*, 45–58, Amsterdam & Philadelphia: John Benjamins.
- Gregory, Stanford W. Jr. & Stephen Webster. 1996. A Low Frequency Acoustic Signal in Voices of Interview Partners Effectively Predicts Communication Accommodation and Social Status Perceptions. *Journal of Personality and Social Psychology* 70(6). 1231–1240.
- Gries, Stefan Th. 2005. Syntactic priming: A corpus-based approach. *Journal of Psycholinguistic Research* 34(4). 365–399.
- Harris, James W. 1983. *Syllable structure and stress in Spanish: A nonlinear analysis*, Cambridge MA, MIT Press.
- Hay, Jennifer, Paul Warren & Katie Drager. 2006. Factors influencing speech perception in the context of a merger-in-progress. *Journal of Phonetics* 34(4). 458–484.
- Hayes, Donald P. & Margaret G. Ahrens. 1988. Vocabulary simplification for children: A special case of 'motherese'? *Journal of Child Language* 15(2). 395–410.
- Heim, Irene. 1992. Presupposition Projection and the Semantics of Attitude Verbs. *Journal of Semantics* 9. 183–221.
- Hess, Ursula, & Sylvie Blairy. 2001. Facial mimicry and emotional contagion to dynamic emotional facial expressions and their influence on decoding accuracy. *International Journal of Psychophysiology* 40(2). 129–141.
- Hirschfeld, Ursula. 1988. Sprachvergleich Spanisch-Deutsch im Bereich der Phonetik/Phonologie. In Gerd Wotjak & Antonio Regales, (eds.). *Studien zum Sprachvergleich Deutsch-Spanisch*, 31–36. Valladolid: Spanischer Deutschlehrerverband.
- Holtgraves, Thomas M. 2002. *Language as Social Action: Social Psychology and Language Use*. New Jersey: Lawrence Erlbaum Associates.
- Hualde, José Ignacio & Christopher D. Eager. 2016. Final devoicing and deletion of /-d/ in Castilian Spanish, *Studies in Hispanic and Lusophone Linguistics* 9(2). 329–353.
- Hwang, Jiwon, Susan E. Brennan, Marie K. Huffman. 2015. Phonetic adaptation in non-native spoken dialogue: Effects of priming and audience design. *Journal of Memory and Language* 81. 72–90.
- Jacob, Céline, Nicolas Guéguen, Angélique Martin & Gaëlle Boulbry. 2011. Retail salespeople's mimicry of customers: Effects on consumer behavior. *Journal of Retailing and Consumer Services* 18. 381–388.
- Jiang, Haisheng. 2010. Effect of L2 phonetic learning on the production of L1 vowels: A study of Mandarin-English bilinguals in Canada. In Katarzyna Dziubalska-Kolaczyk, Magdalena Wrembel & Małgorzata Kul (eds.), *New Sounds 2010: Proceedings of the 6th International Symposium on the Acquisition of Second Language Speech*, Poznan, Poland. 227–232. Adam Mickiewicz University.
- Johnson, Keith, Elizabeth A. Strand & Mariapaola D'Imperio. 1999. Auditory-visual integration of talker gender in vowel perception. *Journal of phonetics* 27(4). 359–384.

- Johnson, Keith. 2005. Decisions and mechanisms in exemplar-based phonology. *UC Berkeley Phonology Lab Annual Report*, 289–309.
- Kaland, Constantijn. 2014. *Prosodic marking of semantic contrasts: Do speakers adapt to addressees?* LOT Number: 366.
- Kim, Midam, William S. Horton & Ann R. Bradlow 2011. Phonetic convergence in spontaneous conversations as a function of interlocutor language distance. *Laboratory Phonology 2*(1). 125–156.
- Kleber Felicitas., Tina John & Johnathan Harrington. 2010. Incomplete, fine phonetic detail, perception, phonological frequency. *Journal of Phonetics* 38(2). 185 – 196.
- Kurumada, Chigusa, Meredith Brown, Sarah Bibyk, Daniel F. Pontillo & Michael K. Tanenhaus. 2014. Is it or isn't it: Listeners make rapid use of prosody to infer speaker meanings. *Cognition* 133(2). 335–342.
- Lewandowski, Natalie. 2012. *Talent in Nonnative Phonetic Convergence*. Institut für Maschinelle Sprachverarbeitung, Universität Stuttgart dissertation.
- Lieberman, Alvin M. & Ignatius G. Mattingly. 1985. The motor theory of speech perception revised, *Cognition* 21. 1–36.
- Lieberman, Kenneth. 2012. Semantic drift in conversations. *Human Studies* 35. 263–277.
- Llanos, Fernando & Alexander L. Francis 2017. The effects of Language Experience and Speech Context on the Phonetic Accommodation of English-accented Spanish Voicing. *Language and Speech* 60(1). 3–26.
- Lleó, Conxita, Imme Kuchenbrandt, Margaret Kehoe & Cristina Trujillo. 2003. Syllable final consonants in Spanish and German monolingual and bilingual acquisition. In Natascha Müller (ed.). *(In)vulnerable domains in multilingualism*, 191–220. Amsterdam: Benjamins.
- Paul A. Luce & David B. Pisoni. 1998. Recognizing spoken words: The neighborhood activation model. *Ear and Hearing* 19(1). 1–36.
- MacLeod, Bethany. 2012. *The effect of perceptual salience on cross-dialectal phonetic convergence in Spanish*. University of Toronto dissertation.
- Mascaró, Joan. 1991. 'Iberian Spirantization and Continuant Spreading', *Catalan Working Papers in Linguistics 1991*, 167–179. Universitat Autònoma de Barcelona.
- Maurer, Richard E. & Jeffrey. H. Tindall. 1983. Effect of postural congruence on client's perception of counselor empathy. *Journal of Counseling Psychology* 30(2). 158.
- McKirnan, David J. & Else V. Hamayan. 1984. Speech norms and attitudes toward outgroup members: A test of a model in a bicultural context, *Journal of Language and Social Psychology* 3(1). 21–38.
- Meltzoff, Andrew N. & Keith M. Moore. 1977. Imitation of facial and manual gestures by human neonates. *Science* 198(4312). 75–78.
- Mitterer, Holger & Jochen Müssele. 2013. Regional accent variation in the shadowing task: Evidence for a loose perception-action coupling in speech, *Attention Perception & Psychophysics* 75(3). 557–575.
- Müller, Natascha. 2017. *Code-Switching*. Tübingen: Narr/Francke/Attempto.
- Myers-Scotton, Carol. 2002. *Contact Linguistics. Bilingual Encounters and Grammatical Outcomes*. Oxford & New York: Oxford University Press.
- Nelson, Larry R. Jr., Margaret L. Signorella & Karin G. Botti. 2016. Accent, gender, and perceived competence, *Hispanic Journal of Behavioral Sciences* 38(2). 166–185.
- Nilsenová, Marie Marc Swerts, Véronique Houtepen & Heleen Dittrich. 2009. Pitch Adaptation in Different Age Groups: Boundary Tones versus Global Pitch. *Proceedings of Interspeech 2009*, Brighton.

- Niwano, Katsuko, & Sugai, Kuniaki. 2003. Maternal Accommodation in Infant-Directed Speech during Mother's and Twin-Infants' Vocal Interactions. *Psychological Reports* 92(2). 481–487.
- O'Dell, Michael & Robert Port. 1983. Discrimination of word-final voicing in German. *Journal of the Acoustical Society of America* 73, S31, N17.
- Pardo, Jennifer S. 2006. On phonetic convergence during conversation. *The Journal of the Acoustical Society of America* 119(4). 2382–93.
- Pardo, Jennifer S., Kelly Jordan, Rolliene Mallari, Caitlin Scanlon, & Eva Lewandowski. 2013. Phonetic convergence in shadowed speech: the relation between acoustic and perceptual measures. *Journal of Memory and Language* 69. 183–195.
- Pentland, Alex. 2008. *Honest Signals – How They Shape Our World*. Cambridge: MIT Press.
- Pickering, Martin J. & Simon Garrod. 2004. Toward a Mechanistic Psychology of Dialogue. *Behavior & Brain Sciences* 27. 169–226.
- Pickering, Martin J. & Simon Garrod. 2006. Alignment as the basis for successful communication. *Research on Language and Computation* 4(2–3). 203–228.
- Pierrehumbert, Janet. 2001. Exemplar dynamics: Word frequency, lenition, and contrast. In Joan L. Bybee and Paul J. Hopper (eds.) *Frequency effects and the emergence of lexical structure*, 137–157. Amsterdam: John Benjamins.
- Pierrehumbert, Janet. 2002. Word-specific phonetics. In: Carlos Gussenhoven & Natasha Warner (eds.), *Laboratory Phonology* 7. 101–139, Berlin & New York: Mouton de Gruyter.
- Port, Robert F., Fares Mitleb & Michael L. O'Dell. 1981. Neutralisation of obstruent voicing in German is incomplete. *Journal of the Acoustical Society of America* 70(S13). F10.
- Port, Robert F. & Michael L. O'Dell. 1985. Neutralisation of syllable final voicing in German. *Journal of phonetics* 13(4). 455–71.
- Port, Robert F. & Penny Crawford. 1989. Incomplete neutralisation and pragmatics in German. *Journal of phonetics* 17(4). 257–282.
- Quilis, Antonio. 1993. *Tratado de fonética y fonología españolas*. Madrid: Gredos.
- R Core Team. 2013. R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing. URL: <http://www.R-project.org/>.
- Reber, Rolf, Norbert Schwarz & Piotr Winkielman. 2004. Processing fluency and aesthetic pleasure: Is beauty in the perceiver's processing experience?, *Personality and Social Psychology Review* 8(4). 364–382.
- Richardson, Michael J., Kerry L. Marsh, Richard W. Isenhower, Justin R.L. Goodman & Richard C. Schmidt. 2007. Rocking together: dynamics of intentional and unintentional interpersonal coordination. *Human Movement Science* 26(6). 867–891.
- Riehl, Claudia Maria. 2014. *Mehrsprachigkeit*. Eine Einführung. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Rojczyk, Arkadiusz, Andrzej Porzuczek & Marcin Bergier. 2013. Immediate and Distracted Imitation in Second-Language Speech: Unreleased Plosives in English. *Research in Language* 11. 3–18.
- Roth, Wolff-Michael & Kenneth Tobin. 2010. Solidarity and Conflict: Prosody as a Transactional Resource in Intra- and Intercultural Communication Involving Power Differences. *Cultural Studies of Science Education* 5. 805–847.
- Ryalls, Brigitte Oliver & David B. Pisoni. 1997. The Effect of Talker Variability on Word Recognition in Preschool Children. *Developmental Psychology* 33(3). 442–452.
- Sancier, Michele L. & Carol A. Fowler. 1997. Gestural drift in a bilingual speaker of Brazilian Portuguese and English. *Journal of Phonetics* 25(4). 421–436.

- Schiegg, Markus 2015. Der flexible Schreiber in der Sprachgeschichte. Grammatical Variation in süddeutschen Patientenbriefen des 19. Jahrhunderts. *Zeitschrift für Dialektologie und Linguistik* 82(2). 169–205.
- Schiegg, Markus & Lena Sowada. 2019. Script switching in nineteenth-century lower-class German handwriting. *Paedagogica Historica* 55(6). 772–791.
- Scissors, Lauren E., Alastair J. Gill, Kathleen Geraghty & Darren Gergle. 2009. In CMC we trust: The role of similarity. *CHI 2009: Digital Life New World – Proceedings of the 27th International Conference on Human Factors in Computing Systems*, 527–536.
- Shepard, Carolyn A., Howard Giles & Beth A. Le Poire. 2001. Communication accommodation theory. *The New Handbook of Language and Social Psychology* 1.2. 33–56.
- Shockley, Kevin, Laura Sabadini & Carol A. Fowler. 2004. Imitation in shadowing words. *Perception & Psychophysics* 66(3). 422–429.
- Smiljanić, Rajka, & Ann R. Bradlow. 2011. Bidirectional clear speech perception benefit for native and high-proficiency non-native talkers and listeners: Intelligibility and accentedness. *The Journal of the Acoustical Society of America* 130(6). 4020.
- Smith, Caroline L. 2007. Prosodic accommodation by French speakers to a non-native interlocutor. *Proceedings of the XVIth International Congress of Phonetic Sciences*, 313–348.
- Snow, Catherine E. 1995. Issues in the Study of Input: Fine-tuning, Universality, Individual and Developmental Differences and Necessary Causes. In Paul Fletcher & Brian MacWhinney (eds.), *The Handbook of Child Language*, 180–194. Oxford: Blackwell.
- Tobin Stephen J., Hosung Nam & Carol A. Fowler. 2017. Phonetic drift in Spanish-English bilinguals: Experiment and a self-organizing model. *Journal of Phonetics* 65. 45–59.
- Torbert, Benjamin C. 2004. *Southern vowels and the social construction of salience*, PhD dissertation, Duke University.
- Torbert, Benjamin C. 2010. The salience of two Southern vowel variants: fronted /o/ and weak-glided /ai/. *Southern Journal of Linguistics* 34(2). 1–36.
- Trofimovich, Pavel. 2016. Interactive alignment A teaching-friendly view of second language pronunciation learning. *Language Teaching* 49(3). 411–422.
- Trudgill, Peter. 1986. *Dialects in contact*. Oxford: Blackwell.
- Trudgill, Peter. 2008. Colonial dialect contact in the history of European languages: On the irrelevance of identity to new-dialect formation. *Language in Society* 37(2). 241–254.
- van Baaren, Rick B., Rob W. Holland, Bregje Steenaert & Ad van Knippenberg. 2003. Mimicry for money: Behavioral consequences of imitation. *Journal of Experimental Social Psychology* 39(4). 393–398.
- van Summers, W., David B. Pisoni, Robert H. Bernacki, Robert I. Pedlow & Michael A. Stokes. 1988. Effects of noise on speech production: acoustic and perceptual analyses. *The Journal of the Acoustical Society of America* 84. 917.
- Venneman, Theo. 1972. On the theory of syllabic phonology. *Linguistische Berichte* 18. 1–18.
- Warren, Paul, Jen Hay & Thomas Brynmor. 2007. The loci of sound change effects in recognition and perception. *Laboratory Phonology* 9. 87–112.
- Zajac, Magdalena & Arkadiusz Rojczyk. 2014. Imitation of English vowel duration upon exposure to native and non-native speech. *Poznan Studies in Contemporary Linguistics*, 50 (4). 495–514.
- Zeine, Lina & John F. Brandt. 1988. The lombard effect on a laryngeal speech. *Journal of Communication Disorders* 21(5). 373–383.
- Zuengler, Jane. 1991. 'Accommodation in native-nonnative interactions: Going beyond the "what" to the "why" in second-language research'. In Howard Giles, Justine Coupland & Nikolas Coupland (eds.), *Contexts of accommodation*, 223–244. Cambridge: Cambridge University Press.

Appendix

I)

Variable	Consonant	Means			Difference			Std. Dev		
		LPc	HPc	G	LPc	HPc	G	LPc	HPc	G
VD (ms)	/d/	163	177	175	11	2	2	39	27	27
	/t/	152	179	173				41	38	33
CD (ms)	/d/	98	103	92	17	5	4	25	22	22
	/t/	81	98	88				27	37	31
GP (ms)	/d/	42	57	34	8	10	1	12	19	15
	/t/	34	47	35				19	15	26
BRD (ms)	/d/	44	44	61	7	13	23	9	15	25
	/t/	37	57	84				13	13	26
PRV (%)	/d/	60	8	0	22	7	0			
	/t/	38	1	0						

IIa) Logistic Regression for G: Test of Model Effects Type III

Source	Wald Chi Square	df	Sig
(Intercept)	16.126	1	.000
VD	0.479	1	.253
CD	5.395	1	.257
GP	3.381	1	.211
BRD	25.008	1	.000
PRV	1.231	1	.982

Dependent Variable: voice; Model: (Intercept), VD, CD, GP, BRD, PRV

IIb) Logistic Regression for HPc: Test of Model Effects Type III

Source	Wald Chi Square	df	Sig
(Intercept)	21.991	1	.000
VD	1.411	1	.331
CD	4.918	1	.078
GP	8.124	1	.056
BRD	8.231	1	.000
PRV	6.222	1	.176

Dependent Variable: voice; Model: (Intercept), VD, CD, GP, BRD, PRV

IIc) Logistic Regression for LPC: Test of Model Effects Type III

Source	Wald Chi Square	df	Sig
(Intercept)	19.911	1	.000
VD	6.172	1	.089
CD	5.331	1	.033
GP	3.719	1	.013
BRD	12.473	1	.000
PRV	11.131	1	.000

Dependent Variable: voice; Model: (Intercept), VD, CD, GP, BRD, PRV

IIIa) Discriminant Analysis Classification Results for G

Predicted Group Membership

	FV	/t/	/d/	Total
Original	/t/	51	67	118
Count	/d/	46	72	118
Percent (%)	/t/	43	57	100.0
	/d/	39	62	100.0

On average 53% of original grouped cases (voiced and voiceless) were correctly classified.

IIIb) Discriminant Analysis Classification Results for HPC

Predicted Group Membership

	FV	0 /t/	1 /d/	Total
Original	/t/	57	41	98
Count	/d/	30	68	98
Percent (%)	/t/	58	42	100.0
	/d/	31	69	100.0

On average 64% of original grouped cases (voiced and voiceless) were correctly classified.

IIIc) Discriminant Analysis Classification Results for LPc

Predicted Group Membership

	FV	0 /t/	1 /d/	Total
Original	/t/	59	14	73
Count	/d/	23	50	73
Percent (%)	/t/	81	19	100.0
	/d/	31	69	100.0

On average 75% of original grouped cases (voiced and voiceless) were correctly classified.

Johanna Fanta-Jende

Situational Effects on Intra-individual Variation in German – Reflexes of Middle High German *ei* in Austrian Speech Repertoires

Abstract: The aim of this chapter is to discuss the role of intra-speaker variation in the dialect-standard-axis across different situations. The empirical input consists of language data from speakers in rural areas of German-speaking Austria, which represent major Bavarian dialect regions (Alemannic-Bavarian, Central Bavarian, South Bavarian). To capture a broad section of the individuals' language repertoires, the data have been collected in various 'natural' conversational and standardised survey settings: an interview conducted by a foreign academic, an unguided conversation among friends, two translation tasks, and two reading-aloud tasks. Using the complex phonological variable Middle High German *ei*, the intra-speaker variation of 20 selected speakers with varying socio-demographic backgrounds is explored quantitatively (frequency analysis and regression models). As the results illustrate, the cross-situational comparison represents a reliable method to explore the language repertoires of various individuals. Up to five phonological variants within one speaker were able to be identified. Furthermore, the author concludes that focussing on intra-individual cross-situational variation not only allows for an in-depth analysis of varying factors influencing language use but it also proves to be a successful methodological concept to gain insights into the overall social-vertical and areal-horizontal dimension of language variation in Austria.

keywords: intra-individual variation, dialect-standard-axis, social situations, language repertoires, Austria, Bavarian

1 Introduction

Phonetic and phonological studies often extract their information from a manageable number of speakers, focusing mainly on high token frequencies and considering essential phonetic factors (e.g. sound classification; word, syllable and morpheme position; phonetic environment; etc.). Key parameters of modern variationist linguistics, however, such as the place of origin of the speaker, the range of his/her individual communicative repertoire, as well as the communicative situation in which

<https://doi.org/10.1515/9783110743036-004>

the elicitation of data takes place (apart from the laboratory), are widely underrepresented or often left out entirely. Hence, “inter-speaker differences have received too little focused attention in the phonetics and phonology literature, in which they are frequently treated as undesirable noise in the data” (Foulkes et al. 2010: 717). Similarly, variationist sociolinguistic studies also often tend to neglect intra-individual factors, aiming at general “differences between individuals’ speech productions by pooling or averaging data for speaker groups” (Foulkes et al. 2010: 717).

It is the aim of the present chapter to tackle particularly this neglected part of variationist sociolinguistics by investigating phonetic and phonological variation in an inter-speaker comparison. In this context, differing situations with changing social components appear to play a crucial role as potential triggers for varietal changes and code-switches (see e.g. Labov 1971; Blom and Gumperz [1972] 2000; see Section 2). Hence, the methodological approach in the present chapter comprises six different situations in the framework of various sociolinguistic parameters, such as “formality”, “naturalness” or “comparability”. By making use of mainly uncontrolled conversations between two speakers from the same location, formal linguistic interviews conducted by a non-local as well as standardised translation and reading tasks, the chapter strives to capture the linguistic repertoires of individual speakers. Based on these individual patterns of variation across differing situations, also inter-individual conclusions can be derived allowing general statements about the language models in place and processes of language change in the future.

In a three-dimensional model of sociolinguistic variation, Hernández-Campoy (2016: 30) equates inter-speaker variation with social variation, covering especially extralinguistic factors such as the influence of “social class, sex, age, social networks, mobility, ethnicity, race, and social ambition” in sociolinguistic research. Furthermore, he identifies intra-speaker variation in terms of linguistic (i.e. language inherent) variation on the one hand and stylistic variation on the other hand, the latter being particularly related to the concept of “situation” (see Hernández Campoy 2016: 30–37). Following Bell’s description of “style”, intra-speaker variation can be defined as “the range of variation for particular sociolinguistic variables [. . .] produced by individual speakers within their own speech” (Bell 2007: 90).

Bülow and Pfenninger (2021) differentiate between intra-individual variation (IAV) as the general term and intra-speaker variation (ISV) as a facet of it. In their definition, IAV is described as the “speaker-inherent variation that occurs in the same style of speech in similar situations irrespective of the context or communication partner” (Bülow and Pfenninger 2021: 5). Their approach relates to macro-level concepts focusing on real-time language variation and change across a lifetime (see e.g. Bülow and Vergeiner 2021 as an example). ISV, however, is their term for variation dependent on the situation or the com-

municative partner, with a strong connection to style-shifting (see Bülow and Pfenninger 2021: 4–5). Ulbrich and Werth in this volume propose a more abstract definition where variation connected to differing situations is categorised as *functionalised IAV*. Their key argument to differentiate this from another category labelled *conditioned IAV* is that “functionalised variants are indexicalised [. . .]” which means that the “linguistic variables can be associated with indexical meaning in different dimensions, including for example socio-demographic identities, native ideologies and style” (Ulbrich and Werth in this volume). On the other hand, *conditioned IAV* relates to systematic (predictable) variation and “corresponds to combinatory variants and phonotactic constraints” (Ulbrich and Werth in this volume). Adapting manner of speaking in accordance to how the speaker associates with a communicative situation or identifies with the style in a certain setting fits this definition as opposed to both *non-conditioned (or free, non-systematic) IAV*, which cannot be related to any social, situational or psychological factors at all, as well as *mandatory forms* which do not allow for any IAV whatsoever, as only one possibility is represented mentally, and no variation can be assumed (see Ulbrich and Werth in this volume).

Austria’s language situation serves as an “ideal research laboratory” (Lenz 2018: 269) for variationist linguistics, as the German language spoken in Austria presents a complex constellation of multiple varieties, allowing speakers to switch and shift effortlessly along the dialect-standard-axis. While there are several thorough investigations focusing on the inter- and intra-speaker variation in specific regions of Germany (see Kehrein 2019 for an overview), comparable endeavours for the Austrian context are still sparse and often regionally limited (e.g. Scheutz 1985; Scheuringer 1990; Bülow and Vergeiner 2021; Vergeiner et al. 2020).

The analyses in the present chapter are based on a substantial empirical corpus, consisting of data gathered within the framework of the Special Research Program (SFB) “German in Austria: Variation – Contact – Perception” (in German, “Deutsch in Österreich. Variation – Kontakt – Perzeption”), funded by the Austrian Science Fund (FWF F60-G23).¹ By investigating the phonological variable Middle High German (MHG) *ei* with complex socio-vertical and areal-horizontal distribution, the linguistic repertoires of 20 Austrian speakers of two generations and representing all of Austria’s major Bavarian dialect regions will be considered. A key object of this chapter is to demonstrate that an averaged pattern

¹ This paper is assigned to Project Part 03, which has the title “Between dialects and standard varieties: Speech repertoires and varietal spectra.” (FWF F06003, principal investigator: Alexandra N. Lenz). See the Project homepage: <https://dioe.at/en/> (accessed February 12 2021). Further information is provided by Lenz (2018) and Budin et al. (2019).

of inter-speaker variation does not necessarily mirror the language behaviour patterns of an individual speaker; rather the reverse, focusing on intra-speaker variation (ISV) might allow for the drawing of conclusions about the overall structure and dynamics of the language in question, i.e. the German language used in Austria.

The second section of the chapter features a theoretical framework, presenting a chronological overview of linguistic research focusing on ISV linked to social situations. A definition of the term “social situation” and its “components” follows in Section 3. The emphasis of Section 4 is on previous studies of ISV in Germany and Austria, while Section 5 offers a detailed description of the methods, corpus and variables used in the empirical investigation. The results are presented in Section 6, leading to a general discussion of the investigation conducted and a final conclusion in Section 7.

2 Theoretical framework: Research on intra-speaker variation and social situations

Already in the early works of Labov (1966, 1971), *situations* or *communicative settings* were considered driving forces for the choice of a particular style. In this perception, speakers would pay more attention to their speech in formal situations while switching to a vernacular register during informal conversations. The degree of formality in a given communicative situation would subsequently lead to a higher or lower amount of attention and awareness paid to the language production of a particular speaker, so that the language production itself would be actually changed. Labov (1971: 170) defines vernacular in this sense as “the style in which the minimum attention is given to the monitoring of speech”. Similar to Fishman’s (1965: 79) concept of an “intimate situation” which seems “to be most resistant to interference, switching or disuse of the mother tongue”, is also Labov’s (1971: 170) assumption that the vernacular presents the least “irregular phonological and grammatical patterns” and the least number of “hypercorrections”. The vernacular is therefore described by him as “the most systematic data for our analysis of linguistic structure”. From his study on postvocalic /r/ in New York City, Labov derived a hierarchical list of five situations differing particularly in the amount of attention spent addressing different spoken styles (from high amount of attention to low amount): casual speech (probably closest to the vernacular), careful speech, reading, word lists and minimal pairs (see Labov 1971: 173).

Also, Blom and Gumperz (2000) made an early differentiation between so-called *situational* and *metaphorical* code-switching. While situational switching “assumes

a direct relationship between language and the social situation” (Blom and Gumperz 2000: 116), e.g. an interaction between business colleagues, metaphorical switching refers to a change of code or style *within* a given situation, often connected to a change of topic or varying role relationships between the speakers involved (e.g. work issues vs. plans for the weekend among business colleagues). While language is also determined by grammatical restraints ensuring grammatical intelligibility, and what Gumperz describes as situationally determined norms (see Gumperz 1982: 61) or social restraints on language choice (see Gumperz 1964: 137), ultimately, the choice of a particular style, code or variety is dependent on the speaker’s individual repertoire, i.e. the *spectrum of linguistic possibility* (“sprachlicher Möglichkeitsraum”, Macha 1991) within the overall *verbal repertoire*. The latter is defined by the “totality of linguistic forms regularly employed in the course of socially significant interaction”, which ultimately “contains all the accepted ways of formulating messages” (Gumperz 1964: 137–138).

By reinterpreting Labov’s (1972: 98) and Mahl’s (1972: 227) experiments on the amount of attention paid to speech, Bell found the axiom of formality to be too simplified (for the argumentation see Bell 1984: 147–150); instead he suggests that “it is the subject’s awareness of his *addressee* – the interviewer – which proves stronger than the ‘pure’ attention factor itself” (Bell 1984: 149). He extends the theory on style variation by introducing the concept of audience and referee design. In audience design, speakers modify their speech by anticipating their audience. This not only includes the direct partner of conversation, the *addressee*, but to a lesser degree also so-called “third persons – auditors and overhearers” and, as the least influencing factor, even “eavesdroppers”, who are neither addressed, ratified nor known (see Bell 1984: 159). In *referee* design, the speaker even identifies with “reference groups, who are absent but influential on the speaker’s attitudes” (Bell 1984: 145); i.e. he/she imitates the (hypothesised) linguistic patterns of a member of a group he/she identifies with (see Bell 1984: 186–187). As Bell argues, even among non-audience, factors such as setting and topic, audience design should be considered the primary force for style-shifts, as “speakers associate classes of topics or settings with classes of persons. They therefore shift style when talking on those topics or in those settings as if they were talking to addressees whom they associate with the topic or setting” (Bell 1984: 181).

The importance of social groups in which speakers interact and the social roles speakers take on and identify with, lay the ground for newer sociolinguistic studies, in which the central point of orientation are the speakers themselves. In these speaker-centred approaches, language, varieties and styles are being used “as a resource in the actual creation, presentation, and re-creation of speaker identity” (Schilling-Estes 2002: 388). In what Eckert (2005) describes as *the Third*

Wave of sociolinguistic research, she proposes an ethnographic study of so-called *communities of practice*, an “aggregate of people who come together on a regular basis to engage in some [. . .] practices” (Eckert 2005: 17). Style is then used to construct an identity or a persona which in relation to its social embedding (i.e. the social practices) creates social meaning (Eckert 2005: 24). In this perspective, “style shifting is not always reactive, triggered by a change in formality or audience composition”, but the speakers “often initiate shifts in language style to effect contextual changes, including changes in role relations among interlocutors.” (Schilling 2013: 328).

The methodological approach to the analysis of identity-making and social meaning is often performed on a micro-level analysis of spontaneous conversations in the framework of interactional sociolinguistics (Gilles 2003: 204). Hence, the concept of a *social situation* would be too broad to identify certain socio-symbolic functions correlated with a specific variety or style within a given conversation. Nonetheless, in this chapter I choose to perform a “global-correlative” analysis by matching social and functional parameters like a situation in a direct way with language behaviour patterns (see Gilles 2003: 199). In my interpretation, the above-mentioned concepts are not opposing approaches for the description of forces influencing language variation; rather, all of them contribute to the overall picture. Since there have only been quite limited and very local studies on the intra-individual language behaviour patterns of Austrian speakers (see Section 4), I believe that shedding light on the “global-correlative” level is a fruitful endeavour to begin with. This approach allows for considering diachronic processes and comparing steps of language change, as well as considering the structure and dynamics of the repertoires used in different languages in general and different areas of the German speaking countries in particular. In any case, the focus will be on how individuals vary in terms of their language behaviour patterns and how ISV potentially affects language change.

3 What is a (social) situation?

Picking up many of the theoretical concepts on stylistic variation mentioned in Section 2, Brown and Fraser (1979) developed an early concept of *situation* based on (i) setting, (ii) participants and their relationships, and (iii) purpose. Setting is identified in this sense with all the physical aspects of a situation, primarily the location, the time and, for example, the seating arrangements. As Brown and Fraser (1979: 44) point out, “it appears to be rare that speech choice is actually determined by the setting *per se*. But settings imbued with cultural import

[. . .] are associated with the activities which customarily take place in them: sermons in church, football on the playing field, buying and selling in the market place”. Without certain “physical markers” (e.g. a market) certain communicative choices (e.g. loud screaming of vegetable names) would not make sense as they are not contextualised. In terms of the roles of participants and their relationship, all socio-demographic parameters such as age, sex or educational background, the allocation and expression of power and status, as well as all conscious and unconscious choices of *audience* and *referee design* (see Section 2) have to be taken into account, both at “an individual (or interpersonal) level and at a social-institutional one” (Brown and Fraser 1979: 54). Finally, “what various writers call purposes, ends, or goals, which in turn are closely tied to notions of task and even of topic” (Brown and Fraser 1979: 34) comprise all questions about the speaker’s communicative goal or plan and his/her varietal choices with regard to a certain topic in a given communicative situation.

A related term is the one of *domain* which Fishman (1965: 75) described as “sociocultural construct”, which is – like Brown and Fraser’s (1979) concept of *situation* – “abstracted from topics of communication, relationships between communicators, and locales of communication, in accord with the institutions of a society and the spheres of activity of a culture”. A clear differentiation is not provided, even though Fishman (1965: 70) argues in support of using solely the concept of *domain*, since “neither reference group membership nor situational style, alone or in concert, fully explain(s) the variations that can be noted in habitual language choice in multilingual settings”. Rather, it appears that exactly the criticism Fishman (1965) propounds against *situations*, concerning the co-occurrence of too many variables, making it “exceedingly difficult to use the concept ‘situation’ [. . .] for analytic purposes” (Fishman 1965: 69–70), applies equally to his (similar) concept of *domain*. In conclusion, domains can be defined in a more general sense as “a cluster of social situations typically constrained by a common set of behavioural rules” (Milroy and Muysken 1995: 5–6, as quoted by Werlen 2004: 335). Typical examples are *neighbourhood*, *working place*, *church* and *governmental administration*; however, the nature and number of domains can vary greatly in relation to the respective speech community and culture (see Werlen 2004: 335).

With regard to these terminological reflections and the methodological considerations in our empirical study, I favour the term *situation* for the present chapter, as it implies a meso-level perspective on language variation (broader than conversational-local speech acts and narrower than *domain*), allowing one to conduct a great variety of language elicitation tasks with differing forms and degrees of social embedding (see Section 5.1). In summary, following a wide definition, a speech situation can be understood as a conglomerate of larger social

constellations in which speakers engage socially (see Glück and Rödel 2016: 665 [Sprechsituation ‘Speech Situation’]). In the same way as many modern researchers argue that there is no linguistics without the prefix “socio-” (see e.g. Labov 1971: 152–153), we can argue that there is no situation without its social embedding. A situation is, hence, defined by “objective” situational parameters such as setting, participants and topic, which are interpreted by speakers who react accordingly. When designing and discussing the respective methods of elicitation, individual interpretations and reactions will have to be considered. However, as previous studies have demonstrated, by keeping the situational parameters as constant as possible, inter- and intra-individual language behaviour patterns can be derived nonetheless (see e.g. Lenz 2003: 57–58).

4 Cross-situational variation: Previous studies in German

The following section gives an overview of selected studies conducted in Germany and Austria. Almost all of them draw on phonetic-phonological variables in a cross-situational comparison to identify individual language behaviour patterns. The underlying theory states that (i) a speaker’s overall linguistic repertoire can be captured best by recording the speaker’s utterances in a wide range of differing yet “objective” and possibly “constant” situational settings, and (ii) based on the linguistic repertoires of several individuals, also general statements about the social-vertical structures and dynamics of a language can be derived (see Auer 2005; Lenz 2010; Kehrein 2019 for further information on the term “social-vertical”). Especially, in the last thirty years, there have been multiple studies conducted to capture variation in the social-vertical language dimension for different parts of Germany; however, only few studies have been conducted in the Austrian language context.

One of the first studies drawing on a cross-situational comparison in German was probably the investigation conducted between 1971 and 1975 in Erp, a small village close to Cologne, Germany. According to Labov’s axiom of formality and language awareness, the speakers’ utterances were analysed in two communicative situations, a formal interview and an informal conversation among villagers, both with a respective topical focus (work vs. local dialect) (see Mattheier 1981, 1995). The insights derived not only revealed different language behaviour patterns connected to the situational adjustments but also suggested that language change *in vivo* as a beginning “advergence” toward the standard language could be detected in the formal speech style (see Mattheier 1995: 265–267).

In her study on the small town of Wittlich (Rhineland-Palatinate, Germany) and the surrounding area, Lenz (2003) was the first one to introduce a set of *four* situations for the elicitation of “authentic” language data from speakers of the region, namely an interview conducted by a linguist, a conversation among speakers from the same locality (labelled as “conversation among friends”), translations into the local dialect and translations into the standard language (see also the method description in Section 5.1, since I make use of similar situations in the empirical part of the present chapter). The translation tasks appeared especially fruitful in terms of detecting hyperdialectalisms and hypercorrections, which were mostly found among young and urban speakers, who did not make use of the base-dialect anymore but a regiolectal variety in their informal conversations (see Lenz 2003: 409, 2004). Apart from inter-individual differences in terms of age and the regional background of the selected speakers (rural vs. urban), Lenz’s findings indicate great ISV across the analysed situations,² allowing for an exact description of the individuals’ linguistic repertoires as well as the overall language spectrum used in Wittlich (see Lenz 2003: 405–413). Additionally, by combining the inter-situational “objective” language data with “subjective” attitudinal and perceptual data, Lenz provides a typology of speaker profiles based on the speakers’ “vertical” patterns and their flexibility to “move” along the dialect-standard axis (see Lenz 2003: 395–404).

In the investigations of Kehrein (2012), the same situations (interview, conversation among friends, dialect and standard translations, see Section 5.1) were used for seven different locations all around Germany, rounded off by the reading of a short fable called *Nordwind und Sonne*, ‘The northwind and the sun’,³ and emergency calls recorded in police stations for some locations. His results demonstrate highly differing vertical spectra for speakers of the various dialect regions under investigation in Germany (see Kehrein 2012: 341). In terms of the region around Trostberg (Bavaria) in the East Upper German language area – which is expected to be closest to the language situation of the Bavarian parts of Austria – Kehrein identifies for five out of six speakers that the dialect is the

2 By performing multiple cluster analyses, Lenz (2003: 408–409) identified five types of speakers within the situation of the informal conversation among friends, and three types of speakers within the interview situation with varying degrees of non-standard frequencies. Hence, the informal conversation seems to present the most heterogeneous language behaviour patterns, reflecting a broad spectrum of what could be labelled ‘everyday language’ and indicating an ongoing restructuring of the vertical axis.

3 The text was originally used by the International Phonetic Association (1949) to elicit a wide range of sound realisations, serving as an illustration for the International Phonetic Alphabet. It was hence translated into many languages and allows nowadays for good comparability to other studies.

primary oral variety in everyday life, in contrast to a rarely used oral realisation of an otherwise only written standard variety; an intermediate speech level was not recorded (see Kehrein 2012: 344–347). Finally, he concludes that for all analysed localities, the “intended steering of language behaviour by selecting and designing survey situations has practically been completely successful” (Kehrein 2012: 339; translated by JFJ).⁴

Lameli (2004) pursues a different approach by comparing discussions, expressions of opinions and reports within multiple sessions of the local councils of Mainz (Rhineland-Palatinate, Germany) and Neumünster (Schleswig-Holstein, Germany). By analysing the degree of dialectal utterances within a single (rather formal) situation (yet with different micro-level language patterns), he seeks to describe the near-standard registers of the politicians involved. Similarly, also Lanwer (2015) derives his results from one communicative situation, in his case so-called “table talks”, i.e. private conversations between friends, neighbours or family members, which follow comparable and repetitious communicative sequences and functions. By combining conversation analysis and variationist linguistics, Lanwer (2015) provides substantial evidence for code-shifting and phonological cooccurrences on a micro-level for the Northern German area (namely Kranenburg and Heiden in North Rhine-Westphalia and Gransee in Brandenburg).

Similar studies conducted in Austria are comparatively rare and usually restricted to one locality, which mostly represents only one Austrian dialect area, namely Central Bavarian (see e.g. Scheutz 1985; Scheuringer 1990; Unger 2014; or Bülow and Vergeiner 2021). This is surprising as Austria’s language situation can be characterised by a “complex accumulation of different language varieties” (Lenz 2018) with “fluent transitions between standard language structures and dialectal structures” (Ammon et al. 2016: XLV; translated by JFJ).⁵ Consequently, a high “vertical flexibility” can be assumed for Austrian speakers, “moving” along the social-vertical axis.

In other words, it is to be assumed that virtually all Austrians are competent in both dialect and standard [. . .]. It is furthermore to be assumed that all Austrians differentiate the two and have some control over their use, and that an important factor in the selection of forms from one or the other variety system is speaking context [. . .]. (Soukup 2009: 40)

⁴ Original quote from Kehrein (2012: 339): „Die angestrebte Steuerung des Sprachverhaltens durch Auswahl und Gestaltung der Erhebungssituationen ist praktisch vollständig gelungen.“

⁵ Original quote from Ammon/Bickel/Lenz (2016: XLV): „Ähnlich wie in Süddeutschland ist das Sprachleben Österreichs geprägt vom fließenden Übergang zwischen standardsprachlichen und dialektalen Strukturen [. . .].“

In 1988, Wiesinger already formulated a diastratic concept of speech styles related to situations in respect of the Austrian language scenario, but on the basis of his observations, without a proper empirical base. He proposed a four-layered model with (a) a base dialect as everyday language among traditional farmers and craftspeople in rural areas; (b) a regional dialect (“Verkehrsdialekt”), which is primarily used by young speakers whose dialectal registers are strongly influenced by urban language behaviour patterns, as they commute to bigger towns and cities; (c) a vernacular, which determines the everyday language in the cities and correlates with the communicative needs and activities of specific educated, occupational groups, such as teachers and doctors; and (d) the standard language, which is strongly linked to formal situations and public life (e.g. TV or radio) as an oral realisation of the written standard (see Wiesinger 1988: 18–20). This model, however, is rather a description of specific domains related to a particular way of speaking; it does not necessarily imply that all these layers occur within an individual.

In his study on the town of Ulrichsberg (Upper Austria, Central Bavarian dialect area), Scheutz (1985) was probably the first to empirically prove ISV to be dependent on situational modifications in the Austrian context. Not only was he able to find evidence that certain phonological features appeared with less frequency in formal interviews in comparison to informal conversations among friends, but he also deduced specific rules of co-occurrence for each situation, shedding light on the internal linguistic system by linking certain features to the appearance of other phenomena and hence revealing the choice of a variant as non-irregular.

Although Scheuringer (1990) carried out a similar investigation by contrasting another Upper Austrian town named Braunau am Inn (Western Central Bavarian dialect region) with the comparable Bavarian city of Simbach am Inn, located on just the other side of the river *Inn*, which constitutes the national border between Austria and Germany, Scheuringer does not draw the conclusion that situational language preferences are involved, as only one linguistic setting was analysed (semi-professional linguistic interviews; see Lenz 2019: 343–344).

Only recently, Vergeiner et al. (2020) and Bülow and Vergeiner (2021) present results from a real-time study comparing Scheutz’s (1985) old data, which was elicited in 1975/1976, with current data from eight members of the pool of the original participants from Ulrichsberg, Upper Austria.⁶ The panel data that spans 43 years reveals an increase of dialect features for the formal situational setting (i.e.

⁶ The entire panel study will be published in Wallner (in preparation).

formal interview) in the case of the selected vocalic variables and an increase for both situations (formal interview and conversation among friends) in the case of the selected consonantal phenomena. The authors argue that these effects of *age-grading* can be explained by the changing communicative demands in each phase of life of the analysed informants. As a consequence, the need for employing the standard language has been reduced during retirement in comparison to their time in active work life. Additionally, the general difference between the recorded settings seems to decline across the life span, yet with strong intra-individual differences.

Vergeiner (2019) based parts of his research on the methodological conceptions of Lanwer (2015), expanding the interactional-local approach with global-correlative analyses of consultation interviews in a university context. His phonetic-phonological results on the IAV of an academic administration employee in six natural consultation talks leads to the conclusion of a permeable yet not completed continuum for the vertical spectrum in Central Bavarian Salzburg. Even though no cross-situational effects can be derived, the methodological implications of joining local and global approaches appear fruitful in the context of future research on IAV along the dialect-standard-axis in Austria.

Furthermore, the cross-situational approach was expanded for syntactic and morphological research in recent years, e.g. by Lenz (2019), Breuer/Wittibschlager (2020), Goryczka et al. (accepted) and Korecky-Kröll (2020, accepted), drawing on the same empirical corpus of the SFB project “German in Austria”. Further works on syntax are those by Breuer (in preparation) for Vienna or by Kallenborn (2019) for the Moselle Franconian language area. By introducing so-called language production experiments (see Lenz et al. 2019) particularly aimed at triggering syntactic and morphological language data, they proved that syntactic and morphological features too can be allocated on the social-vertical dimension of language variation.

Finally, also multiple perceptual and attitudinal investigations confirmed the relevance of situation for the choice of a specific register or variety in Austria (see e.g. Steinegger 1998: 105–151; Kaiser and Ender 2009; Wiesinger 2010: 363–364; Koppensteiner and Lenz 2017; Fanta 2017: 311–313). Especially for speakers from the rural parts of Austria, we can assume a high loyalty toward the dialect in most everyday and informal situations (e.g. conversations with friends and family but also work), with switching toward standard registers in formal or official and public situations (e.g. (administrative) office, bank, police station, radio, TV, also formal exams or job interviews etc.), as well as with speakers who have no dialect competence (e.g. tourists, foreigners, speakers of German as an L2; see Lenz 2019: 341–342).

5 The present study

In this section, I present an excerpt of our empirical data to shed light on the situational effects on ISV in Austria. The aim of the empirical study is to capture linguistic repertoires from multiple speakers in Austria across various situations. Such an approach allows not only for detailed descriptions of the variants in use and the individual composition of variants for each individual, but also inter-speaker comparisons, as the situations are replicable for all individuals involved. Hence, insights into the (most) dialectal as well as the (most) (near-)standard registers and “everything in between” can be gained, resulting in an understanding of the general vertical structures and dynamics among Austrian speakers.

Since the data was developed and gathered within a bigger project, namely project part 03 of the Special Research Program (SFB) “German in Austria: Variation – Contact – Perception”, I was able to make use of a substantial corpus: 20 speakers from five different dialect regions across Austria (see Section 5.2) were recorded in six varying situations (see Section 5.1). The analyses of the present chapter focus on the phonological variable MHG *ei* (see Section 5.3) to illustrate the different varietal choices and language behaviour patterns which can be deduced for each selected speaker.

5.1 Methods of data elicitation: Situations

To tackle the complexity of the discussed situational variables, such as setting, participants and purpose (see Section 3), as well as the characteristics of the Austrian language situation involved (e.g. assumed high dialect loyalty and vertical flexibility), we devised a multimethod approach. In particular, this involved a range of (rather) closed and standardised elicitation tasks on the one hand, and free, conversational methods on the other hand. The situational repertoire used is similar to that of other projects (e.g. *REDE*, *Deutsch Heute*, *SiN*, see Schmidt and Herrgen 2011: 365–392) allowing for inter-individual comparison with language data from different parts of German-speaking countries.

1. We elicited two types of spontaneous conversational data which differ primarily in terms of formality and familiarity. The first was a linguistic **Interview (INT)** of about one hour conducted by an Austrian researcher from our research group. Because of the high number of participants (with a core of 150 persons for project part 03 in the entire country of Austria), multiple researchers had to conduct the examinations. Hence, to maintain comparability, all interviewers followed a written handbook of questions (some of the questions are discussed in Koppensteiner and Lenz 2017). By this means,

the speakers' language biographies, language knowledge, their perceived varietal competence, their perception of the general and individual vertical structure, their affective-evaluative attitudes toward specific varieties as well as their attachment and loyalty toward their place of origin were assessed.⁷ Key questions with an assumed high sociosymbolic value (e.g. "purity of the standard variety") were read aloud word-by-word from the handbook to avoid inconsistency. Although the interview took place at the informant's home, informant and interviewer mostly sitting opposite each other, the relationship between the interviewer and the interviewee can be described as distant and unfamiliar, as the interlocutors just knew each other from the initial inquiry phone call. To elicit a formal speech style, all interviewers were encouraged to converse solely in Austrian Standard German and to use the formal pronoun *Sie*, 'you'.

2. The second conversational setting resembled the interview situation, only this time the two interlocutors were familiar with each other. Instead of having an asymmetric relationship with a non-local linguistic "expert" questioner and a responsive layperson,⁸ now two persons from the same location – usually close friends – chatted for about one hour. In order to maintain comparability across both conversational situations, we combined topics concerning language (e.g. "Talk about Viennese Dialect" etc.) with subjects from everyday life (e.g. "Relate a very pleasant experience from the past") by introducing playing cards (see Breuer in preparation for further information on the method). The participants alternated in picking a playing card and asking the other person about the topic depicted on the card. Additional motives behind making use of playing cards were also to elicit different tenses and modes of speech (e.g. subjunctive, see Breuer and Wittibschlager 2020) and to ensure that the conversational partners had an inducement to talk to each other for an hour with alternating turns. This situation is what we call a "**Conversation among friends**" (**Conversation/CaF**).
3. In order not to rely solely on the conversational data but to allow for more standardised comparisons between potentially different registers of the vertical axis, we appropriated the so-called **Wenker Sentences**. These Wenker

⁷ The interview's contents on the attitudinal-perceptual level are being analysed by project part 08 (PP08) within the framework of the SFB "German in Austria". For this purpose, only interviews conducted by a single researcher are taken into consideration (for more information on PP08, see Koppensteiner and Lenz (2017)).

⁸ Even though the interview was already designed in an asymmetric way involving a linguist asking about language in his/her research, we tried to establish an atmosphere of trust in which the participants had the role of experts on their own particular language situation.

sentences comprise 40 phrases used for German dialectological studies since the 19th century. Georg Wenker distributed these sentences to more than 40,000 schools and their respective teachers between 1876 and 1933 in German-speaking areas. In a written questionnaire, teachers (and their pupils) had to translate the Wenker sentences from standard German into the local dialect.⁹ In our adaptation, we added nine sentences to the original set of 40 (see the ones for MHG *ei* in Fanta-Jende 2020b: 223) and proposed an orally-induced translation in order to avoid the challenge of transcribing a (rather) spoken variety (for the methodological discussion see Lenz 2003: 58–59). Moreover, we tried to not only track the individual performances in the local dialect but also in the standard language. Subsequently, the participants had to listen to each sentence in their local dialect (spoken by a young local from the same village or town) or in Standard Austrian German (spoken by a national news broadcaster). The task was to translate sentence-by-sentence into the “individual best” version of the respective other variety (e.g. “best local dialect” or “best High German”¹⁰). Apart from minor irritations regarding some archaic peculiarities of the historic sentences (especially in terms of content, e.g. agricultural, housekeeping, or in terms of lexical choices, e.g. *artig* ‘well-behaved, good’), the translations serve as authentic sources for what Lenz (2003: 58–60) calls *Intended Local Dialect* and *Intended Standard Language*. The term “intended” refers to the individual language use oriented to what the speakers consider *their* “best” standard language or *their* “best” local dialect. Of course, the self-perception does not necessarily have to match the actual production; nonetheless, it allows for an estimation of what speakers identify as local salient features and enables the capturing of produced hypercorrections and hyperdialectalisms.

4. Finally, we conducted two **reading tasks**, one featuring the reading of the fable *Nordwind und Sonne*, ‘The northwind and the sun’, and the other requiring the reading aloud of isolated words designed for controlling different phonological conditions (e.g. minimal pairs, sound position, phonetic environment etc.). Following Labov (1971), we assume that the highest

⁹ For further information on the Wenker questionnaires, see <https://regionalsprache.de/en/contents-wenker-questionnaires.aspx> (accessed February 12 2021).

¹⁰ The selected term used to define a variety was established individually together with each informant during the Interview and remained the terminological framework for the entire inquiry (e.g. *Hochdeutsch* ‘High German’, *Nach-der-Schrift-Reden* ‘speaking according to the written language’, ‘Austrian type of High German’, ‘Mischmasch’ ‘mishmash, mingle-mangle’ etc., see Koppensteiner and Lenz (2017) and Koppensteiner and Lenz (2020).

amount of “awareness” occurs during the reading of such isolated words, allowing us to gain information about the vertical “extreme pole” of an individual speaker in terms of his/her most articulate speech. On a perceptual level, it also allows for indications of the individual’s awareness in respect of certain features and his/her projection of an ideal pronunciation in the near-standard registers.

5.2 Corpus

The empirical base for the present chapter consists of 20 male and female speakers from 5 different localities (4 speakers per location), distributed all over the Bavarian part of Austria. The analyses in this chapter will only focus on the Bavarian dialect area, as the Alemannic west of Austria has been investigated to a lesser extent than the Bavarian majority of the country (exceptions are e.g. Kaiser and Ender 2009, 2015; Ender and Kaiser 2014 and Schönherr 2016), rendering the particular Alemannic social-vertical dynamics largely opaque and complicating direct comparisons (see also Fanta-Jende 2020b on first results from the Alemannic village Raggal, Vorarlberg). The selected locations are from west to east: Tarrenz (TARR; Tyrol) in the Alemannic-South Bavarian transition area, Weissbriach (WEIS; Carinthia) as an exemplary location for the South Bavarian dialect family, Taufkirchen an der Pram (TAUF; Upper Austria) and Neumarkt an der Ybbs (NMYB; Lower Austria) as western and eastern representatives of Central Bavarian, and Neckenmarkt (NECK; Burgenland) in the very east of Austria, representing the South-Central Bavarian language area (see Figure 1). These locations can be considered comparable, since all of them are rural, having a population of between 500 and 2,000 inhabitants, being located a great distance from larger cities and displaying a geographically rather discrete village core (in comparison to far-stretched communities along entire valleys in the mountainous parts of Austria). To gain an understanding of the maximum range of the overall language spectrum of the locations under consideration, two generational groups were considered with each consisting of two speakers per location. The first group involves retired participants aged above 60 years and what variationist linguists often refer to as classical “NORMs” and “NORFs” (non-mobile, old, rural, males and females; see Chambers and Trudgill 1998: 29). The second group is composed of “the exact opposite”, i.e. young participants (aged between 18 to 35 years) with high formal education (high school “Matura” graduates) and generally high mobility (often as a result of attending school/university in a bigger town or city).

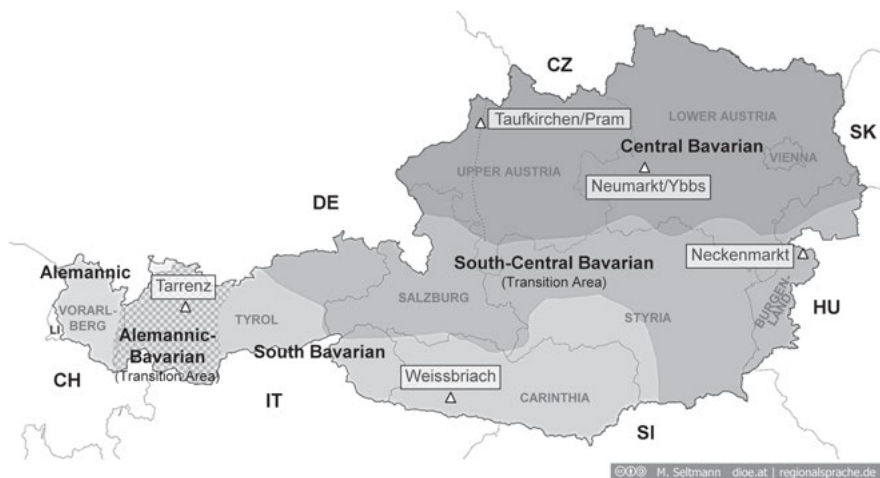


Figure 1: Geographical and linguistic distribution of 5 selected locations in Austria.

5.3 Variables

The emphasis of our analysis is on the reflexes of the phonetic-phonological phenomenon of Middle High German (MHG) *ei*. This variable is particularly fruitful in terms of its striking areal-horizontal diffusion as well as its social-vertical complexity in Austria (see Fanta-Jende 2020b for a full discussion of the phenomenon and diachronic description).

First, I will focus on potential realisations of MHG *ei* on a dialectal level issuing from the above-mentioned *Wenker* questionnaires. Relevant maps demonstrate that the diphthong /oä/ constituted the primary form in nearly the entire Austro-Bavarian language area of that time (1926–1933) with considerable exceptions only in Vienna and the South of Carinthia, where an /a:/ monophthong is used instead of /oä/ (see map 16 *breit* ‘broad’ in Kranzmayer 1956 or Wiesinger’s map (WEK 1962–1969) for the lexeme *heim* ‘home’). Accordingly, while speakers of Bavarian from Munich (Bavaria, Germany), Graz (Styria), Linz (Upper Austria) or Innsbruck (Tyrol), for instance, must have used realisations such as /hoam/, /aloä/ or /soäf/ in their local dialects for the lexemes *heim* ‘home’, *alleine* ‘alone’ or *Seife* ‘soap’, speakers from Vienna and parts of Carinthia favored a pronunciation such as /ha:m/, /ala:n/ or /sa:f/. These exceptions are said to be the result of phonological and sociolinguistic processes in these particular areas, going back, one assumes, to the High Medieval Period (see Kranzmayer 1956: 60 and Wiesinger 2001). Moreover, for the present, respective dialectological research

from the last century has shown that the monophthong /a:/ is spreading from Vienna, replacing the former diphthong and/or entering the intermediate section of the dialect-standard-axis as a presumably more prestigious and “less dialectal” regional dialectal variant (see Scheutz 1985; Unger 2014; Fanta-Jende 2020b). Hence, even though the /a:/ is horizontally associated with the dialectal variant of Austria’s capital, Vienna, (and to a lesser degree) to Austria’s southern state Carinthia, it might serve vertically as intermediate vernacular variant, as it seems to be perceived as less dialectal than base-dialectal /o̩a/.

Additionally, a noteworthy role might be associated with certain lexical exceptions which seem to defy a translation into dialect (regardless of whether /o̩a/ or /a:/ would be used), even though they have their roots in MHG *ei*. This involves historically theological and juridical terms such as *Fleisch* ‘meat’, *rein* ‘clean, pure’ or the morphological ending <-heit> as in *Wahrheit*, ‘truth’, but also vocabulary derived from recent conversational data such as *eigentlich*, ‘actually’, *Verein*, ‘club, society’ or *geil*, coll. ‘awesome’ (see Fanta-Jende 2020a: 230–234 for the full list). The impact of these lexical particularities on language change and their regional diffusion are part of an ongoing discussion which is beyond the scope of the present chapter (see Bülow et al. 2019 on this issue). The chosen solution provides for ejecting all “marked” lexemes from the conversational corpus and the dialect translations unless they are realised at least once in a dialectal way (e.g. *heilig* is pronounced once as [ha:|ɪçŋ] during a Conversation among Friends in Neckenmarkt, Burgenland, or *meiste/n* ‘most’ is realised once as [ma:|d̥ŋ] in Carinthian Weißbriach and 8 times as [mœ̯|d̥e] in Tyrolian Tarrenz during the free conversations or the dialect translation). In the two reading tasks, no lexemes are excluded, as the general token number is already low and no dialectal realisation is expected.

In sum, for the first analyses of MHG *ei*, I identify two competitive variants in the “lower” parts of the dialect-standard-axis, namely /a:/ vs. /o̩a/, both opposing another third variant which is defined by non-dialect, i.e. the standard form [aɛ] as pronounced in /haɛm/, /alaɛn/ or /saɛfe/, ‘home’, ‘alone’, ‘soap’ (see Figure 2).¹¹ This leads to a second process intertwined with the variable of MHG *ei* which deals exactly with a more detailed determination of the standard variant in use. Due to a separate process of monophthongization, stand-

11 The convention for transcribing the realisation of the standard variant follows Moosmüller et al. (2015), who obtained empirical evidence that /aɛ/ (as opposed to /ai/ /aɪ/ or /aɛ/ and other versions) appears to be closest to the standard pronunciation of the diphthong in Austria. Note that the phonological categories /aɛ/, /o̩a/ and /a:/ are broad transcriptions allowing also slightly different realisations, e.g. /aɪ/ /ɔɪ/ /oɪ/ etc., whereas [aɛ], [æɛ] and [æ:] represent narrow phonetic transcriptions.

ard [aɛ̯] is also affected among other diphthongs by variation, leading to semi-monophthongized [æ̯] or fully-monophthongized [æ:] (see Figure 2).¹² Although the previously described exceptions concerning the dialectal parts of the vertical spectrum feature a process of monophthongization (/o̯/ to /a:/) spreading from Vienna too, it is this second modification ([aɛ̯] to [æ̯] or [æ:]) which is usually labelled “Viennese Monophthongization” as Vienna is also the centre of the spread in question (see Luttenberger and Fanta-Jende 2020 for more details on the differentiation). In contrast, the relationship between the variants [aɛ̯], [æ̯] and [æ:] are not determined as strict phonological categories; they are hence not clearly distinct but rather exemplary categories used to describe the gradual nature within the standard and near-standard sections of the vertical axis.¹³ Moreover, this “(Second) Viennese Monophthongization” (as I have argued to label it for chronological reasons in Luttenberger and Fanta-Jende 2020) does not date back as far as the Middle Ages but is said to have appeared first around 1900 and is described as completed in Vienna in 1940 as part of a broader phonological process (see Kranzmayer 1953 and Moosmüller 2002: 100).

12 It has to be mentioned that realisations of [aɛ̯], [æ̯] or [æ:] in the standard language do not all go back to MHG *ei*; instead, they might also refer to reflexes of MHG *î* (in words like *Zeit* ‘time’, *Eis* ‘ice’ or *Drei* ‘three’). The German standard language does not differentiate between MHG *ei* and MHG *î* but the dialects conserve the old difference. Thus, cases of MHG *î* would also be pronounced as [aɛ̯], [æ̯] or [æ:] in the Bavarian dialects (as in the standard language) while cases of MHG *ei* are generally realised as /o̯/ or /a:/ in the dialects (as explained above). In this paper, I only considered lexemes dating back to MHG *ei* for the following reasons: (1) as MHG *ei* proposes a more complex phenomenon with up to five possible variants, I assume more social-vertical dynamics and higher inter-situational differences for MHG *ei*; (2) differences should already be visible in the standard language where MHG *ei* and *î* merge into one phonological category; yet previous studies investigating the diphthongs in the Austrian standard language usually do not mention the historical root as an influencing factor (see e.g. Moosmüller (1998); Moosmüller and Vollmann (2001); Moosmüller and Scheutz (2013)); (3) in another paper, I compared the Bavarian data with data from the Alemannic west of Austria (see Fanta-Jende (2020b)); as MHG *î* remains [i:] in the Alemannic dialects (e.g. [ʔsi:t] *Zeit* ‘time’), the process of monophthongization of [aɛ̯] can only be explored by making comparative use of lexemes deriving from MHG *ei*.

13 For the process of transcribing and categorising via auditory phonetics, loops of “prototypical” versions for each of the three variants served as ideal reference sounds. Furthermore, to enhance objectivity, all transcriptions and annotations were carried out by a single researcher, with regular double-checks by a second researcher at random. Even though both researchers consider the monophthongization as a salient and thus “audible” feature, of course, auditory phonetics might involve a certain risk when assessing graduated sounds. The high total number of 3,982 analysed tokens might compensate for this. Additionally, acoustic measurements were conducted for parts of the presented material in Luttenberger and Fanta-Jende (2020). Finally, I would like to express my deepest gratitude to Barbara Binder for her help and good work during the transcribing and annotation process.

MHG <i>ei</i>		
[aɛ]	[æɛ]	[æ:]
/a:/		
/oɔ/		

Figure 2: Overview of selected variants for the variable MHG *ei*.

Nowadays, we can assume a total takeover of monophthongized [æ:] forms, especially among the younger Viennese generation (see Moosmüller and Vollmann 2001: 46), whose primary variety of everyday life is often a local intended standard language with dialectal and vernacular forms having only expressive, ironic or imitational functions (see Soukup 2009: 39; Glauninger 2012; Fanta 2017). As in the first process, relevant studies also report a spread of the (Second) Viennese Monophthongization from Vienna into other parts of the Austro-Bavarian area (see Moosmüller 1991: 35–37, 1998: 10; Moosmüller and Scheutz 2013), but with differing degrees in various situations connected to the awareness and attention expended while speaking (see Moosmüller 1998: 20; Luttenberger and Fanta-Jende 2020). An open question is the associated normative status of the (semi-)monophthongized versions [æ:] and [æɛ], as they may not be salient to the speakers in question due to their graduality, functioning as legitimate forms throughout the entire linguistic spectrum of non-professional speakers (see Fanta-Jende 2020b). However, in terms of the “higher” standard pronunciation of professional speakers, Krech et al. (2009) suggest that this involves the usage of full-diphthongs only.

6 Results

By comparing the individual repertoires of the 20 selected participants from different localities and balanced socio-demographic backgrounds across six socio-situational contexts, the individual variation patterns will be focused on with regard to the phonological variable MHG *ei*.

The method of analysis will mostly rely on frequency analysis with a special emphasis on contrasting inter- and intra-speaker variation. For the statistical analysis, I have used the *lme4* package (Bates et al. 2015) of R (R Core Team 2018) to produce generalised linear mixed-effects models (GLMM; using the *glmer* function in R) of the relationship between two realisations of MHG *ei* and various participant, stimulus and procedure variables. The dependent variable was binomial; i.e. the realisations of MHG *ei* were separated into two categories (0 or 1). As

each situation triggers different frequencies of variants, three sets of dependent variables were considered:

- (i) dialectal /oɔ/ and /a:/ vs. all (near-)standard variants (Section 6.1)
- (ii) /oɔ/ vs. /a:/ (Section 6.2, Figure 5);
- (iii) (Semi-)monophthongized [æɐ̯] and [æ:] vs. standard [aɛ] (Section 6.2, Figure 6)

Other variants, as well as forms which could not be classified unambiguously, were classified as “other”. Because of their small numbers ($n=126$; 3%), I did not include them in the statistical analysis. Fixed participant variables were LOCATION, GENERATION and GENDER, whereas the fixed variable related to the procedure was the SITUATION (translation into dialect, conversation among friends, interview, translation into standard, reading text and reading words). INDIVIDUAL SPEAKER (via participant ID) and LEMMA were entered as random variables. The documentation of the statistical analysis includes β -values as the estimates of the fixed effect, SE as standard error, z-scores and r^2 as measures for effect size,¹⁴ and p-values for significance.¹⁵

6.1 Cross-speaker results

The aim of this section is to give an overview of the selected phenomenon, allowing general conclusions about the distribution of MHG *ei* with regard to certain sociolinguistic variables. Since previous studies focusing on describing the vertical spectrum of multiple speakers or an entire locality (see Section 4) rely on a binary classification of the variants involved, I will also start by determining the degree of “dialectality” (dialectal = 1 vs. nondialectal = 0) for each of the variables “situation”, “location” and “gender and generation”.

6.1.1 Situation

Since situation is one of the parameters assumed to be essential for the description of inter- and intra-speaker variation, the respective results are presented first. Figure 3 shows all relative frequencies of the dialectal variants /oɔ/ and /a:/

¹⁴ Nakagawa and Schielzeth (2013) propose the measurement of r^2 to estimate the fit of mixed-effect models; the implementation in the R-package performance is based on Lüdtke et al. (2020).

¹⁵ For all inferential computations, a significance level of $\alpha = 0.05$ is assumed.

(y-axis) in relation to the situations associated with each location (x-axis). The total number of analysed tokens is 3,982, out of which 2,332 occur as /o̩/ or /a:/ variants (58,6%). Note that all frequencies in Figure 3 are relative, the absolute numbers are indicated next to the respective symbol for each situation and can differ considerably between the settings. As the graph reveals, there are differences between the localities in terms of the number of dialectal variants used in each situation. Nonetheless, all locations share the fact that there appears no single record of /o̩/ or /a:/ in the reading settings (the reading of the text “The northwind and the sun” and the reading of isolated words) or during the standard translation task. Accordingly, the dialectal forms are only registered for the other three situations, namely the dialect translation task (Translation D), the Conversation among Friends (CaF) and the Interview (INT). While Translation D and CaF seem to feature equally high frequencies of “dialectality” (/o̩/ or /a:/) without offering a clear hierarchy (averaged at 76% for the dialect translation task and averaged at 77% for the CaF setting), it becomes obvious that almost all analysed INTs are less dialectal in comparison (56% on average).

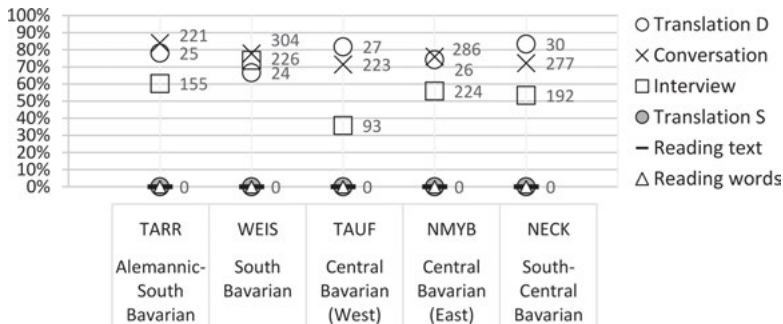


Figure 3: Frequencies (in % and absolute numbers) of non-standard variants /o̩/ and /a:/ in all settings per location (N=3,982).

These results on the effect of SITUATION are confirmed by the statistical analysis. As the results branch out in an extreme way, a so-called *complete separation* could be proven. This indicates that, owing to the perfect separation of successful and failed parameters in a binary-response model, unrealistically large parameter estimates are considered by the statistical software, resulting in an error.¹⁶

¹⁶ See GLMM FAQ (2020): <http://bbolker.github.io/mixedmodels-misc/glmmFAQ.html#penalizationhandling-complete-separation> (accessed February 12 2021) for further information on the complete separation error in R.

Hence, a modification of the variable SITUATION was executed, reducing the initial number of six settings (translation D, CaF, INT, translation S, text, words) to a set of only three (translation D, CaF, INT), namely those which show some dialectal variation. Interestingly, a significant effect was calculated both for CaF ($\beta = -1.547$, $SE = 0.759$, $z = -2.039$, $p = 0.042$) and INT ($\beta = -3.008$, $SE = 0.759$, $z = -3.965$, $p < 0.001$) in contrast to the dialect translation. Yet the effect size measurement for this model indicates that SITUATION as fixed effect only explains 0.34% of the variance in the data. Taking the random effects INDIVIDUAL SPEAKER and LEMMA into account, the value rises to 85% (marginal $r^2 = 0.034$, conditional $r^2 = 0.852$). This might be explained first by considering both variants indifferently as one category and second by considering certain speakers and specific lexemes which influence the outcome but stay undetected in averaged group results. The in-depth analysis in Section 6.2 might allow further insights.

Overall, the situational adjustments seem to trigger varietal changes at least in terms of the degree of “dialectality” used. Thus, we can assume that the selected speakers have a clear notion of when to avoid dialectal realisations, which is primarily during reading and translation tasks with the standard as designated variety. The interview seems to be a particularly fruitful method to capture an ‘intermediate’ level of “dialectality” for almost all locations. Furthermore, as Translation D and CaF show similar frequencies yet significant deviation in the statistical analysis, the methodological aim behind eliciting “the individually best dialect” might still be in the dark. On the other hand, similar numbers between the ‘natural, free’ conversation and the standardised translations might indicate a certain stability of dialectal features in everyday conversations. In subsequent analysis of the ISV, we will also detect variation within these situations which are not affected by this binary categorisation of variants, but which require a far more detailed classification (see Section 6.2).

6.1.2 Location

Regarding the areal-horizontal distribution of the conflated dialectal variants /oä/ and /a:/ (against all other variants), there does not seem to be an obvious difference between the chosen Bavarian localities and the respective dialect areas (see Figure 3). The statistical data shows that Tarrenz (TARR) which is situated in the very west of Austria only differs weakly ($\beta = -1.174$, $SE = 0.497$, $z = -2.361$, $p = 0.018$) from Central Bavarian Taufkirchen an der Pram (TAUF) in terms of “dialectality”, whereas no differences could be found in contrast to the other four locations. Similarly, also the r^2 is quite low indicating that the fixed effect of LOCA-

TION only explains 0.01% of the variance in the data (marginal $r^2 = 0.001$, though with conditional $r^2 = 0.862$).

The minor statistical contrast between TARR and TAUF is probably related to the comparably small number of /oɑ/ and /a:/ variants during INT in TAUF. Moreover, TAUF and Neckemarkt (NECK) seem to be the only locations where a steady decline of dialectal features from Translation D via CaF to INT occurs. TARR, Weißbriach (WEIS) and Neumarkt/Ybbs (NMYB), on the other hand, share the fact that the translation into dialect shows slightly lower dialectal frequencies than CaF. In general, this might be explained by certain lexemes in the *Wenker* translation tasks which seem to undergo a change toward an increasing preference for standard pronunciation (e.g. *meisten* ‘most’ with only 2 dialectal realisations in total out of 20 instances and *Kleider* ‘clothes, dresses’ with 6/20). In the case of Weißbriach specifically, the base-dialectal disposition (of supposedly using /a:/ instead of /oɑ/) in combination with the phonetic context of the lexeme *Eier* ‘eggs’ promotes a near-standard realisation as [aɪ̯], [aɛ̯] or [æɛ̯] (versus [ɔ̯] in all other locations), resulting in the lowest quantity of dialectal frequencies in WEIS compared to all dialect translations. Note that in the process of conducting the translation tasks, some lexemes were left out or replaced by synonyms by the participants, e.g. [gʷant] *Gewand* instead of *Kleider* ‘clothes’), leading to an uneven absolute number for this setting between the various localities.

6.1.3 Generation and gender

A common factor in sociolinguistic studies is generation. Figure 4 provides the essential information, with ten older participants (60+ years) on the left side and ten younger informants on the right side (18–35 years), i.e. two speakers for each of the five locations of interest on each side. The statistical data confirms that no distinct generational effect can be identified in terms of general “dialectality” (older generation compared to young: $\beta = 0.386$, $SE = 0.371$, $z = 1.040$, $p = 0.298$, marginal $r^2 = 0.002$ and conditional $r^2 = 0.853$). We can merely describe some tendencies: the speakers analysed from the older generation seem to be more homogeneous in terms of their vertical spectrum, clearly assessing the interview as the least dialectal situation. On the part of the younger generation, the interview is also lowest in four out of five cases but the general distance in relation to the Translation D and CaF is not as pronounced.

In terms of the sociolinguistic variable gender, the data suggest that women on average use a few more dialectal variants in the translation task (57.2% vs. 53.8%), almost the same amount during the Conversation among Friends (61.4% vs. 62.7%) and again slightly more during the Interview (41.3% vs. 37.2%).

However, no significant effect can be deduced (women compared to men: $\beta = 0.112$, $SE = 0.382$, $z = 0.294$, $p = 0.769$, marginal $r^2 = 0.000$ and conditional $r^2 = 0.853$).

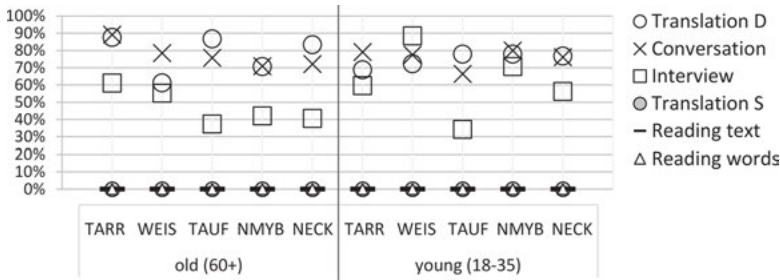


Figure 4: Frequencies of non-standard variants /oɑ/ and /a:/ per generation and location (N=3,982).

As it turns out, the overall perspective on inter-individual variation is successful in terms of determining two categories of situation, one with high and intermediate rates of dialectal features and one without any dialectal features at all. Yet, among and within the three situations of translation into dialect, conversation among friends and interview, it is difficult to deduce clear-cut patterns. For the other sociolinguistic variables, only a very basic estimation could be made, rendering the underlying dynamics on the social-vertical dimension still opaque. The following section on ISV allows for more thorough investigations and in-depth analyses.

6.2 Results on intra-speaker variation

The aim of the following section is to describe the data based on the linguistic patterns of each participating speaker. Hence, following up on the aforementioned results on inter-individual variation, this includes not only an illustration of the individual vertical repertoires (as opposed to visualising the averaged spectra of entire socio-demographic groups) but also determining which variant is used in which situational setting. Thus, a total of five phonetic-phonological variants (/oɑ/, /a:/, [aɛ], [æɛ] and [æ:]) will be considered.

Before discussing the full range of varietal choices in relation to these variants, I will first focus again on the distribution of /oɑ/ and /a:/, but as independent variants beyond the two-dimensional scale of dialectal vs. non-dialectal (see Figure 5). The standard and near-standard variants [aɛ], [æɛ] and [æ:] are greyed out in this first step, for a better overview. Figure 5 depicts all speakers embed-

ded in their respective socio-demographic categories on the x-axis and the relative frequencies of /o̩/ (wave-pattern) and /a:/ variants (horizontal stripes) for each situation on the y-axis. Note that the order of the situations is now upside-down in comparison to the graphs on inter-individual variation. This reflects the common metaphorical placement of dialect at the “lower” end and standard at the “upper” section of the vertical spectrum (see e.g. Kehrein 2012). However, these terms are not intended to be mistaken for evaluations of prestige or categories of societal stratification, they serve solely as tools for theoretical assumptions. The third category “other” (transverse stripes) was added, as some of the produced sounds could not be categorised clearly (e.g. reductions as in [ves] for (*ich*) *weiß* ‘I know’).

In accordance with the previous results, there is also a strict differentiation observable between the dialect translation, the CaF and the Interview in contrast to the reading of words and text as well as the standard translation task. The latter have near-standard variants almost exclusively, with only very few occurrences of the category “other”. Furthermore, by comparing the ‘lower’ and ‘intermediate’ settings on the vertical axis, further insights can be gained: the statistical measurements register a significant deviation in the use of /o̩/ vs. /a:/ between the dialect translation and the interview ($\beta = -3.677$, $SE = 0.478$, $z = -7.688$, $p < 0.001$) and even in contrast to the conversation among friends ($\beta = -1.476$, $SE = 0.444$, $z = -3.324$, $p < 0.001$; marginal $r^2 = 0.037$, conditional $r^2 = 0.913$ for the entire model).

Regarding all three settings, the distribution of /o̩/ seems to be strongly dependent on the areal-horizontal dimension. TARR and TAUF appear especially loyal toward using the /o̩/ variant. In the statistical data, TAUF does not differ significantly from the baseline TARR ($\beta = 1.435$, $SE = 1.812$, $z = 0.792$, $p = 0.428$), while all other locations show significantly fewer /o̩/ correlations (NECK: $\beta = -4.067$, $SE = 1.553$, $z = -2.619$, $p < 0.01$; NMYB: $\beta = -6.885$, $SE = 1.562$, $z = -4.407$, $p < 0.001$; WEIS: $\beta = -11.481$, $SE = 1.908$, $z = -6.016$, $p < 0.001$). WEIS, for example, follows exactly the assumed realisations of /a:/ for a village located in Carinthia. In this model with /oa/ coded as 1 and /a:/ as 0 (and all other variants as “NA”), 70% of the variance is explained by the fixed effect LOCATION (marginal $r^2 = 0.702$, conditional $r^2 = 0.892$).

However, NMYB and NECK demonstrate particularly interesting inter-situational behaviour patterns, shifting drastically between the available variants. In the case of the younger generation (see NECK 0026 and 0025 as well as NMYB 0263 and 0204), the /o̩/ fulfils mostly the function of an idealised version of the local dialect – spoken when particularly triggered by a translation task designed for the purpose of language elicitation – while the /a:/ monophthong predominates in both conversational situations. Accordingly, a visible line seems to run along the axioms of “currentness” and “naturalness” vs. “historical” and

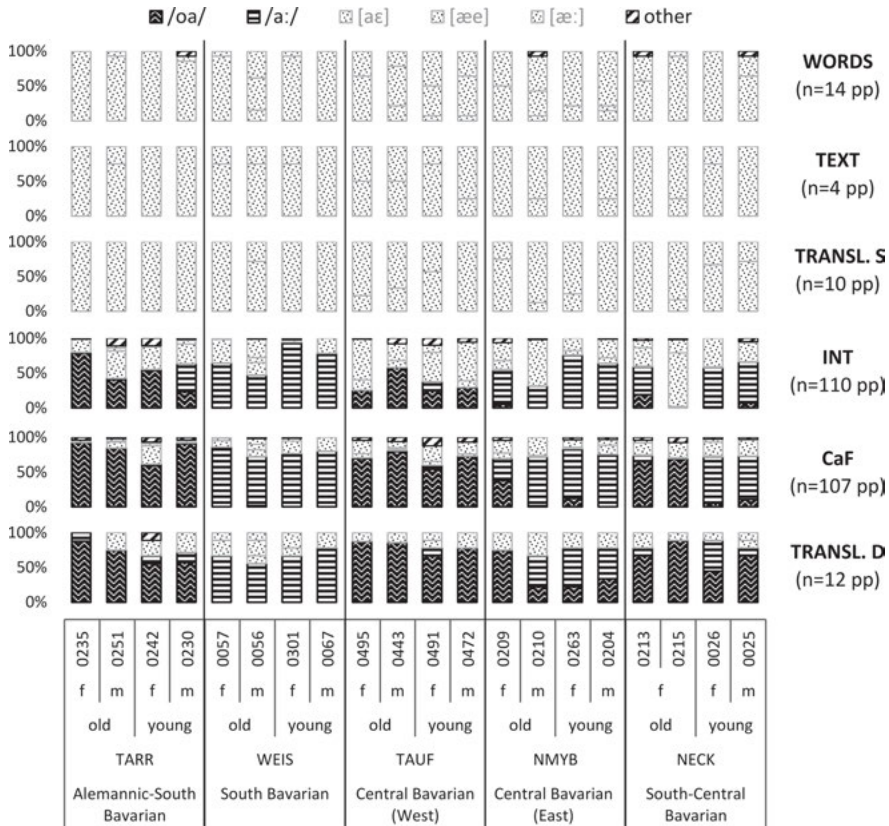


Figure 5: MHG *ei*. Distribution of /oə/, /a:/ and “other” variants for each speaker per location in each situation; standard [aɛ] and standard-near variants [æɛ] and [æ:] are greyed out. (N=3,982; pp = averaged number per person).

“dialect staging”. Except for the older man from NMYB (O210), it becomes clear that the older generation from NMYB and NECK, however, does indeed employ the /oə/ diphthongs as customary form in everyday conversations among friends. Apparently, talking to a non-local academic during the formal INTs is the required trigger for the older generation to replace the diphthong by the monophthong or to switch directly to the (near-)standard variants like O215 from NECK.

Finally, the following example taken from the interview situation from O213 (NECK/Burgenland) displays the simultaneous use of three variants on the micro-level within one sentence. The utterance was realised in the formal conversation completely unrelated to the matter of subject without a specific stimulus or association; instead, the topical context was linked to general perceptions of lan-

guage change and the appearance of new lexemes in the German language due to increased mobility and travelling.

Example

Interview sequence (speaker 0213 from NECK)

- (1) Du WEISST, was das ist, du weißt, was DAS ist,
 [va:sd̥] [vœ̯sd̥]
 ‘You KNOW what this is, you know what THAT is’
- (2) und durch das Reisen ja auch.
 [ʁæ̯es̥n]
 ‘and due to the travelling certainly too.’

It seems that the shift between /a:/ and /o̯a/ is used here as a side effect of marking a contrastive stress. The first part of the sentence is stressed on (*du*) *weißst* ‘(you) know’ but in the next part the stress shifts to the object *das* ‘that’ in the middle of the sentence. Since [va:sd̥] is the stressed variant, it appears as if the /a:/ was used intentionally while [vœ̯sd̥] occurred unintentionally with less attention provided. Finally, at the end of the sentence, the speaker shifts toward a near-standard register which is also marked by co-occurrences in other words, e.g. *das* remains [d̥as], *ja* is realised as standard [ja] and *auch* is not reduced to dialectal [a:]. Such examples of switching and shifting on the micro-level might give additional indications on the process of language change in the region and the direction it might take. Unfortunately, it is beyond the scope of the present chapter to expand on this intriguing topic.

In the next analysis, the emphasis will be on the standard and near-standard variants, as they appear to play a significant role in the three situations, reading words, reading text and the standard translation. Therefore, Figure 6 visualises the frequencies of [aɛ̯] (white), [æ̯ɛ̯] (grey) and [æ:] (black) for each informant per location (x-axis) in all six situational settings (y-axis). This time, /o̯a/, /a:/ and the category “other” are greyed out for better comprehensibility. Already at first glance, distinct areal-horizontal differences between TARR and WEIS in comparison to the other locations become visible. This is also represented in the statistical results as TARR shows no significant effect at all compared to WEIS ($\beta = 1.374$, $SE = 0.973$, $z = 1.411$, $p = 0.158$) in terms of their usage of (semi-) monophthongized forms [æ:] and [æ̯ɛ̯] (coded as 1) vs. standard [aɛ̯] (coded as 0) but significant deviations from all other locations (TAUF: $\beta = 8.350$, $SE = 1.115$, $z = 7.485$, $p < 0.001$; NMYB: $\beta = 7.688$, $SE = 1.050$, $z = 7.322$, $p < 0.001$; NECK: $\beta = 5.333$, $SE = 0.979$, $z = 5.445$, $p < 0.001$). Here, the effect measurement indicates that 59% of the variance is explained by the

fixed effect LOCATION; the value rises to 81% when the random effects INDIVIDUAL SPEAKER and LEMMA are included (marginal $r^2 = 0.590$, conditional $r^2 = 0.808$). Apparently, the “Viennese” monophthongization with [æ:] and a partial take-over with [æɛ] has already reached all eastern locations, being particularly visible in the Central Bavarian dialect area with TAUF and NYMB. The western locations TARR and WEIS as representatives of South Bavarian¹⁷ seem to hold on to full diphthongs instead. Hence, dialect region has a significant effect too, as Central Bavarian deviates statistically not only from South Bavarian ($\beta = -7.344$, SE = 0.835, $z = -8.790$, $p < 0.001$) but also from South-Central Bavarian NECK in Burgenland ($\beta = -2.685$, SE = 0.618, $z = 7.878$, $p < 0.01$). The effect measurement is equally high, explaining 58% of the variance in the data by the fixed effect DIALECT REGION (marginal $r^2 = 0.582$, conditional $r^2 = 0.811$). Interestingly, no traces of this Viennese innovation can be found among the young generation from WEIS as opposed to one of the older speakers (0056, male), who shows clear signs of adoption in all settings.

On the social-vertical axis, the results demonstrate generally quite stable proportions for the analysed variants among all situations, but with a trend toward using [aɛ] at least in the ‘highest’ registers, i.e. the reading of isolated words. This is reflected statistically by the fact that the reading of words shows a significant deviance from all other settings (text: $\beta = 1.634$, SE = 0.526, $z = 3.103$, $p < 0.01$; Translation S: $\beta = 3.306$, SE = 0.602, $z = 5.492$, $p < 0.001$; INT: $\beta = 5.610$, SE = 0.630, $z = 8.899$, $p < 0.001$; CaF: $\beta = 4.899$, SE = 0.614, $z = 7.973$, $p < 0.001$; Translation D: $\beta = 2.368$, SE = 0.895, $z = 2.647$, $p < 0.01$). As this model only considers the (semi-)monophthongized forms [æ:] and [æɛ] against standard [aɛ] (with all other variants as “NA”) and focuses on the east of the country, thus leaving out TARR and WEIS, 37% of the variance in the data can be explained by the fixed effect SETTING (marginal $r^2 = 0.377$, conditional $r^2 = 0.710$).

A possible interpretation of this phenomenon is that attention and awareness are indeed important factors for language production and that the diphthong [aɛ] serves as a representation of an individual “best standard” (at least for most participants in TARR, WEIS and NECK). On the other hand, in the above-discussed cases of TAUF and NYMB, one may argue that the Viennese monophthong lacks saliency in the “ears” of the respective speakers, leading to high rates of [æ:] even in reading situations with the highest expected standard rates and maximum attention spent on production. These findings illustrate that some speakers do indeed consider [æ:] and [æɛ] as variants in conformity with the standard. It should be noted though, that the “upper” settings consist of a comparatively low

¹⁷ Tarrenz might be situated in the Alemannic-(South) Bavarian transition area, but in terms of the variants related to MHG *ei* no Alemannic influence can be detected.

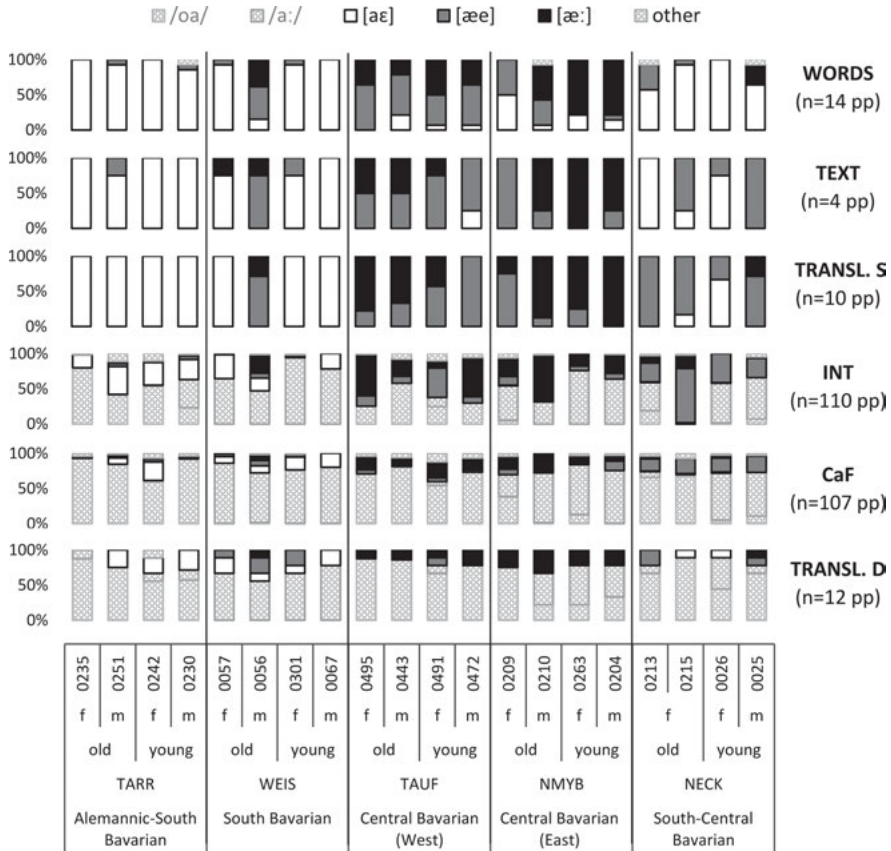


Figure 6: MHG *ei*. Distribution of standard [aε] and standard-near variants [æε] and [æ:] for each speaker per location and each situation; dialectal variants /oɑ/, /a:/ and “other” are greyed out. (N=3,982; pp = averaged number per person).

number of records in comparison to the conversational settings, and that the differentiation between the three (near-)standard forms is one of a gradual nature and hence only serves to point to tendencies. Acoustic measurements were conducted for parts of the presented material in Luttenberger and Fanta-Jende 2020).

6.3 Summary for MHG *ei*

In terms of the variable under consideration, MHG *ei*, the empirical data permit assumptions about a general areal-horizontal language change in the eastern parts of Austria, indicating a decline of base-dialectal /oɑ/ variants in favour of

Viennese /a:/ (for details on the base-dialects e.g. Kranzmayer 1956. The latter could be interpreted by the selected speakers as less dialectal and hence an adequate “intermediate” form, used particularly in formal conversations such as a linguistic interview with Austrians who are not local or do not speak the local dialect. Concerning the “upper” parts of the dialect-standard-axis, a similar tendency can be observed involving the spread of the Viennese monophthong [æ:] in the east of the country. The data suggest that the dialect region (in this case Central Bavarian) is an influencing factor for the diffusion of the Viennese variant, but with partial adoptions on an individual level in other locations.

When comparing the general “degree of dialectality” (undifferentiated usage of /oɔ/ or /a:/ against all other variants), there are no substantial differences between the analysed locations. Also, gender-specific and generational aspects have a comparably low impact on the distribution of dialectal variants for the chosen phenomenon.

In terms of inter-situational differences, it is surprising how the translation into dialect – which supposedly captures the individuals’ “best dialect” – demonstrates similar frequencies of dialectal features as the Conversation among Friends. A valid explanation might be that the “best dialect” is not defined primarily by the quantity of “dialectal” forms but rather by quality, i.e. the highest rates of /oɔ/ instead of /a:/ variants. Especially among the young speakers from Neckenmarkt and Neumarkt/Ybbs, /oɔ/ still seems to be associated with some sort of dialect reminiscence, while it is reduced to a negligible point during the free conversations. The older generation in these eastern Austrian locations, however, still make use of /oɔ/ in their conversations among friends but switch to using the Viennese forms during the interview. Hence, when considering the interplay of all possible variants, clear differences can be derived for the situations under investigation. Thus, all speakers refrain from using /oɔ/ and /a:/ variants during the standard translation and the reading tasks. The reading of isolated words yields generally the highest rates of standard forms, as most attention is expended in this case. At the same time, though, the concept of an “intended standard” also stands firm, with full diphthongs in the west and high acceptability of monophthongized [æ:] and semi-monophthongized [æɐ] in Central Bavarian Taufkirchen and Neumarkt/Ybbs.

7 Discussion and conclusion

The language situation in Austria is found to be a particularly fruitful context for variationist research, as code-switching and -shifting are an essential part of social life, and speakers “move” effortlessly along the dialect-standard-axis.

Labov's (1966, 1971, 1972) propositions of formality and attention, Bell's (1984) conceptions of audience and referee design, as well as micro-contextual aspects of meaning-making (see e.g. Eckert 2005; Schilling 2013; see Section 2) are all key factors influencing the varietal choices of individual speakers. Hence, investigating the language spectra of speakers in Austria appears to be a particularly worthwhile endeavour. By conducting six social situations along the axioms of formality, naturalness and strict "objective" parameters allowing inter-individual comparability, I have striven to capture broad sections of the individual's language repertoires, shedding light on Fishman's (1965) famous question "Who speaks what language to whom and when?". The focus on intra-speaker cross-situational variation proved to be a successful methodological approach in the Austrian context for gaining insights into the overall social-vertical and areal-horizontal dimension of language variation in Austria.

As the focus was not on the structure of general communicative domains, I would locate the chosen approach on a meso-level of language analysis with emphasis on a "global-correlative" perspective (see Section 3). However, while there are a decent number of investigations tackling this topic in Germany, so far there are only few studies in Austria focusing on individual language repertoires across varying situations, none of them laying the emphasis on comparing multiple locations or dialect regions (see Section 4). This might have to do with the fact that the selection of phenomena suitable for different locations is comparably difficult as areal-horizontal particularities with different degrees of dialect restructuring on a diachronic level can be expected (see Section 5.3 for the complexity regarding the chosen variable MHG *ei* in the present chapter). One solution is to predetermine a binary classification as dialectal or non-dialectal, which – as I tried to demonstrate in the empirical part of the present chapter (Section 6.1) – entails another difficulty of neglecting complex inter-variant-relations. Hence, considering the diversity of variants that a single speaker might make use of in various situations in an adequate method of analysis serves as an argument favouring ISV instead of a binary but less detailed inter-speaker perspective. The range used by a single speaker in the present chapter features up to five possible variants used for the phonological variable MHG *ei* (see Section 5.3).

To address the research gap in question, I took on a multivariate empirical basis to shed light on the areal-horizontal as well as social-vertical dimensions of language variation among 20 analysed speakers in Austria. Four speakers each (two of the older and two of the younger generation) were selected as representatives of five rural locations in Austria's major Bavarian dialect regions (Central Bavarian, South Bavarian, South-Central Bavarian and the Alemannic-Bavarian transition area).

I conclude that a broad methodical approach with varying situations serves as an ideal tool to identify individual language repertoires and varietal spectra. On the basis of the study conducted, it seems that ISV can be described generally in terms of (i) the overall quantity of variants a selected speaker can chose from (in case of the selected phonological variant MHG *ei*, five possible variants (/oä/, /a:/, [aɛ], [æɛ] and [æ:]), (ii) the frequencies of each variant determining and structuring the vertical spectrum (which is unique for each individual), as well as (iii) the general willingness of a speaker to “engage flexibly” or “steadily” in terms of his or her varietal choices. As the present chapter tries to demonstrate, focusing on the language behaviour patterns of individuals allows for a complex and in-depth analysis of the multiple parameters at hand, which often prove to be more diverse than averaged group results (see Section 6.2). The derived information enables the inferring of explanations of individual motives for language change and can serve furthermore as a case study to derive more generalised abstractions.

Certainly, such interpretations require further attention to the language material at hand. In the case of the presented study, additional insights on the language biographies, as well as perceptual and attitudinal data, could help us to understand why certain speakers make use of specific language variants to a certain degree (e.g. speaker 0056 from Weißbriach who demonstrates surprisingly high frequencies of the Viennese monophthongs in his near-standard speech) or how the complexity of variants are perceived and structured attitudinally (e.g. reasons for the switching among three variants in one sentence by speaker 0213 from Neckenmarkt). By drawing on more variables, a better understanding of different speaker-types could be arrived at. Finally, combining the presented meso-level approach with a micro-level perspective would help to determine the internal cohesion of the conducted situations and to identify conversational-local functions associated with specific variants or the cooccurrence of variant bundles. Such suggestions remain, however, the subject of future research endeavours.

References

- Ammon, Ulrich, Hans Bickel & Alexandra N. Lenz (eds.). 2016. *Variantenwörterbuch des Deutschen: Die Standardsprache in Österreich, der Schweiz und Deutschland, Liechtenstein, Luxemburg, Ostbelgien und Südtirol sowie Rumänien, Namibia und Mennonitensiedlungen*, 2nd edn. Berlin & Boston: de Gruyter.
- Auer, Peter. 2005. Europe's sociolinguistic unity, or. A typology of European dialect/standard constellations. In Nicole Delbecque, Johan van der Auwera & Dirk Geeraerts (eds.), *Perspectives on Variation. Sociolinguistic, Historical, Comparative*, 7–42. Berlin & New York: de Gruyter.
- Bates, Douglas, Martin Maechler, Ben Bolker & Steve Walker. 2015. Fitting linear mixed-effect models using lme4. *Journal of Statistical Software* 67(1). 1–48.
- Bell, Allan. 1984. Language style as audience design. *Language in Society* 13(2). 145–204.
- Bell, Allan. 2007. Style in dialogue: Bakhtin and sociolinguistic theory. In Robert Bayley & Ceil Lucas (eds.), *Sociolinguistic Variation*, 90–109. Cambridge: Cambridge University Press.
- Blom, Jan-Petter & John J. Gumperz. 2000 [1972]. Social Meaning in Linguistic Structures: Code Switching in Northern Norway. In Wei, Li (ed.), *The Bilingualism Reader*, 102–126. London & New York: Routledge.
- Breuer, Ludwig M. in preparation. *Syntaktische Variation der modernen Regionalsprache in Wien [working title]*. Vienna: University of Vienna dissertation.
- Breuer, Ludwig M. & Anja Wittibschlager. 2020. The variation of the subjunctive II in Austria: Evidence from urban and rural analyses. In Péter Szigetvári (ed.), *Linguistic Variation: Special Issue: Variation in Phonology* 20. 136–171.
- Brown, Penelope & Colin Fraser. 1979. Speech as a marker of situation. In Klaus R. Scherer (ed.), *Social markers in speech* (European studies in social psychology). 33–62. Cambridge: Cambridge University Press.
- Budin, Gerhard, Stephan Elspaß, Alexandra N. Lenz, Stefan M. Newerkla & Arne Ziegler. 2019. The Research Project (SFB) 'German in Austria'. Variation – Contact – Perception. In Lars Bülow, Ann K. Fischer & Kristina Herbert (eds.), *Dimensions of Linguistic Space: Variation – Multilingualism – Conceptualisations. Dimensionen des sprachlichen Raums: Variation – Mehrsprachigkeit – Konzeptualisierung* (Schriften zur deutschen Sprache in Österreich 45). 7–35. Berlin: Peter Lang.
- Bülow, Lars & Simone E. Pfenninger. 2021. Introduction: Reconciling approaches to intra-individual variation in psycholinguistics and variationist sociolinguistics. *Linguistics Vanguard* 7(s2): 20200027.
- Bülow, Lars & Philip Vergeiner. 2021. Intra-individual variation across the lifespan: Results from an Austrian panel study. *Linguistics Vanguard* 7(s2): 20200026.
- Bülow, Lars, Philip C. Vergeiner, Hannes Scheutz, Dominik Wallner & Stephan Elspass. 2019. Wie regelhaft ist Lautwandel? Grundsätzliche Überlegungen anhand einer Fallstudie zu mhd. *ö* in den bairischen Dialekten Österreichs und Südtirols. *Zeitschrift für Dialektologie und Linguistik* 86(1). 5–50.
- Chambers, Jack K. & Peter Trudgill. 1998. *Dialectology*, 2nd edn. (Cambridge Textbooks in Linguistics). Cambridge: Cambridge University Press.
- Eckert, Penelope. 2005. *The third wave in variation: Talk presented to the Institute for Danish Dialectology*. Copenhagen University.
- Ender, Andrea & Irma Kaiser. 2014. Diglossie oder Dialekt-Standard-Kontinuum? Zwischen kollektiver, individueller, wahrgenommener und tatsächlicher Sprachvariation in

- Vorarlberg und im bairischsprachigen Österreich. *Alemannische Dialektologie: Dialekte im Kontakt*. 131–146.
- Fanta, Johanna. 2017. Der österreichische Sprachalltag aus jugendlich-urbaner Sicht unter Rücksichtnahme aktueller Sprachwandelphänomene. In Meike Glawe, Line-Marie Hohenstein, Stephanie Sauermilch, Kathrin Weber & Heike Wermer (eds.), *Aktuelle Tendenzen in der Variationslinguistik* (Kleine und regionale Sprachen). Hildesheim, Zürich & New York: Olms.
- Fanta-Jende, Johanna. 2020a. Sociolinguistic implications on the variation of MHG /ei/ in Austria. In Elissa Pustka, Markus A. Pöchtrager, Alexandra N. Lenz, Johanna Fanta-Jende, Julia Horvath & Luise Jansen (eds.), *Akten der Konferenz „Phonetik und Phonologie im deutschsprachigen Raum (P&P14)“: Proceedings of the Conference „Phonetics and Phonology in the German Language Area (P&P14)“*, 46–49. Vienna: Open Access-Publication in Repositorium Phaidra [URL: <https://phaidra.univie.ac.at/o:1082319>].
- Fanta-Jende, Johanna. 2020b. Varieties in Contact: Horizontal and vertical dimensions of phonological variation in Austria. In Alexandra N. Lenz & Mateusz Maselko (eds.), *Variationist Linguistics meets Contact Linguistics*, 203–240. Vienna: Vienna University Press.
- Fishman, Joshua A. 1965. Who Speaks What Language to Whom and When? *La Linguistique* 1 (2). 67–88.
- Foulkes, Paul, James M. Scobbie & Dominic Watt. 2010. Sociophonetics. In William J. Hardcastle, John Laver & Fiona E. Gibbon (eds.), *The handbook of phonetic sciences*, 2nd edn. (Blackwell handbooks in linguistics). 703–754. Chichester/West Sussex, Malden/MA & Oxford: Wiley-Blackwell.
- Gilles, Peter. 2003. Zugänge zum Substandard: Korrelativ-globale und konversationell-lokale Verfahren. In Jannis K. Androutsopoulos & Klaus J. Mattheier (eds.), *„Standardfragen“: Soziolinguistische Perspektiven auf Sprachgeschichte, Sprachkontakt und Sprachvariation; Festgabe zum 60. Geburtstag von Klaus Jochem Mattheier* (VarioLingua). 195–216. Frankfurt am Main: Peter Lang.
- Glauninger, Manfred M. 2012. Zur Metasozioseiose des ›Wienerischen‹. Aspekte einer funktionalen Sprachvariationstheorie. *Zeitschrift für Literaturwissenschaft und Linguistik* 42(2). 110–118.
- Glück, Helmut & Michael Rödel. 2016. Artikel von A–Z. In Helmut Glück & Michael Rödel (eds.), *Metzler Lexikon Sprache*, 1–793. Stuttgart: J.B. Metzler.
- Goryczka, Pamela, Anja Wittibschlager, Katharina Korecky-Kröll & Alexandra N. Lenz. accepted. Variation and Wandel adnominaler Possessivkonstruktionen im Deutschen. Horizontal-areale und vertikal-soziale Analysen zum österreichischen Sprachraum. *Zeitschrift für Dialektologie und Linguistik*.
- Gumperz, John J. 1964. Linguistic and Social Interaction in Two Communities. *American Anthropologist* 66(6,2). 137–153.
- Gumperz, John J. 1982. *Discourse Strategies*. Cambridge & New York: Cambridge University Press.
- Hernández Campoy, Juan M. 2016. *Sociolinguistic styles* (Language in society). Hoboken N.J.: Wiley-Blackwell.
- Kaiser, Irmtraud & Andrea Ender. 2009. Zum Stellenwert von Dialekt und Standard im österreichischen und Schweizer Alltag – Ergebnisse einer Umfrage. *Zeitschrift für Germanistische Linguistik* 37(2). 266–295.
- Kaiser, Irmtraud & Andrea Ender. 2015. Das Spektrum der Sprachvariation im alemannischsprachigen Vorarlberg und im übrigen Österreich: Realisierungen und

- Kategorisierungen. In Alexandra N. Lenz, Timo Ahlers & Manfred M. Glauninger (eds.), *Dimensionen des Deutschen in Österreich: Variation und Varietäten im sozialen Kontext* (Schriften zur deutschen Sprache in Österreich 42). 11–29. Frankfurt am Main: Peter Lang.
- Kallenborn, Tim. 2019. *Regionalsprachliche Syntax: Horizontal-vertikale Variation im Moselfränkischen* (Zeitschrift für Dialektologie und Linguistik: Beihefte 176). Stuttgart: Franz Steiner Verlag.
- Kehrein, Roland. 2012. *Regionalsprachliche Spektren im Raum: Zur linguistischen Struktur der Vertikale*. Stuttgart: Franz Steiner Verlag.
- Kehrein, Roland. 2019. 5. Areale Variation Im Deutschen „Vertikal“. In Joachim Herrgen & Jürgen E. Schmidt (eds.), *Deutsch*, 121–158. Berlin & Boston: de Gruyter.
- Koppensteiner, Wolfgang & Alexandra N. Lenz. 2017. Theoretische und methodische Herausforderungen einer perceptiv-attitudinalen Standardsprachforschung. Perspektiven aus und auf Österreich. In Heinz Sieburg & Hans-Joachim Solms (eds.), *Das Deutsche als plurizentrische Sprache. Ansprüche – Ergebnisse – Perspektiven. Zeitschrift für deutsche Philologie Sonderheft 136*. 43–68. Berlin: Erich Schmidt Verlag.
- Koppensteiner, Wolfgang & Alexandra N. Lenz. 2020. Tracing a standard language in Austria using methodological microvariations of Verbal and Matched Guise Technique. *Linguistik Online* 102(2). 47–82.
- Korecky-Kröll, Katharina. accepted. Ma tuat net so vüü verniedlichen“ – oder doch?: Verweigerung und Hinzufügung von Diminutiven als Schnittstellenprobleme von mündlichen „Wenker“-Übersetzungsaufgaben. *Zeitschrift für Dialektologie und Linguistik*.
- Korecky-Kröll, Katharina. 2020. Morphological dynamics of German adjective gradation in rural regions of Austria. *Zeitschrift für Dialektologie und Linguistik* 87(1). 25–65.
- Kranzmayer, Eberhard. 1953. Lautwandlungen und Lautverschiebungen im gegenwärtigen Wienerischen. *Zeitschrift für Mundartforschung* 21(4). 197–239.
- Kranzmayer, Eberhard. 1956. *Historische Lautgeographie des gesamtbairischen Dialektraumes: mit 27 Laut- und 4 Hilfskarten in besonderer Mappe*. Graz & Köln: Hermann Böhlau Nachf.
- Krech, Eva-Maria, Eberhard Stock, Ursula Hirschfeld & Lutz C. Anders. 2009. *Deutsches Aussprachewörterbuch*. Berlin & New York: de Gruyter.
- Labov, William. 1966. *The social stratification of English in New York City*. Washington, DC: Center for Applied Linguistics.
- Labov, William. 1971. The Study of Language in its Social Context. In Joshua A. Fishman (ed.), *Advances in the Sociology of Language*, 2018th edn. (Contributions to the Sociology of Language [CSL] 1). 152–216. Berlin & Boston: De Gruyter Mouton.
- Labov, William. 1972. *Sociolinguistic patterns* (Conduct and Communication). Philadelphia: University of Pennsylvania Press.
- Lameli, Alfred. 2004. *Standard und Substandard: Regionalismen im diachronen Längsschnitt* (Zeitschrift für Dialektologie und Linguistik: Beihefte 128). Stuttgart: Steiner.
- Lanwer, Jens P. 2015. *Regionale Alltagssprache: Theorie, Methodologie und Empirie einer gebrauchsbasierten Areallinguistik* (Empirische Linguistik / Empirical Linguistics 4). Berlin & Boston: de Gruyter.
- Lenz, Alexandra N. 2003. *Struktur und Dynamik des Substandards: Eine Studie zum Westmitteldeutschen: (Wittlich/Eifel)* (Zeitschrift für Dialektologie und Linguistik: Beihefte 125). Stuttgart: Steiner.
- Lenz, Alexandra N. 2004. Hyperforms and Variety Barriers. In Britt-Louise Gunnarsson (ed.), *Language variation in Europe: Papers from the 2nd International Conference on Language*

- Variation in Europe, ICLaVE 2; Uppsala University, Sweden, June 12–14, 2003*, 281–294. Uppsala: Universitet.
- Lenz, Alexandra N. 2010. Emergence of varieties through restructuring and reevaluation. In Peter Auer & Jürgen E. Schmidt (eds.), *Language and space: An international handbook of linguistic variation*. Volume 1: Theories and Methods (Handbücher zur Sprach- und Kommunikationswissenschaft = Handbooks of linguistics and communication science 30.1). 295–315. Berlin & New York: De Gruyter Mouton.
- Lenz, Alexandra N. 2018. The Special Research Programme: German in Austria: Variation – Contact – Perception. *Sociolinguistica* 32(1). 269–278.
- Lenz, Alexandra N. 2019. Bairisch und Alemannisch in Österreich. In Joachim Herrgen & Jürgen E. Schmidt (eds.), *Deutsch*, 318–363. Berlin & Boston: de Gruyter.
- Lenz, Alexandra N., Ludwig M. Breuer, Matthias Fingerhuth, Anja Wittibschlager & Melanie E.-H. Seltmann. 2019. Exploring syntactic variation by means of “Language Production Experiments”: Methods from and analyses on German in Austria. *Journal of Linguistic Geography* 7(2). 63–81.
- Lüdecke, Daniel, Dominique Makowski, Philip Waggoner & Indrajeet Patil. 2020. *performance*. (Version 0.4.5) [Software]. <https://cran.r-project.org/web/packages/performance/index.html> (accessed February 12 2021).
- Luttenberger, Jan & Johanna Fanta-Jende. 2020. “Viennese Monophthongs”: Present – marked – given? On intra-individual variation of /aɛ/ and /aɔ/ diphthongs in standard German pronunciation in rural Austria. *The Phonetician* (117). 45–58.
- Macha, Jürgen. 1991. *Der flexible Sprecher: Untersuchungen zu Sprache und Sprachbewußtsein rheinischer Handwerksmeister* (Veröffentlichung des Instituts für Geschichtliche Landeskunde der Rheinlande an der Universität Bonn). Köln et al.: Böhlau
- Mahl, G. F. 1972. People talking when they can’t hear their voices. In Aron W. Siegman & Benjamin Pope (eds.), *Studies in Dyadic Communication* (Pergamon General Psychology Series). 211–264. New York: Pergamon.
- Mattheier, Klaus J. 1981. Chronologischer Überblick über Planung und Durchführung der Datenerhebung. In Werner Besch (ed.), *Sprachverhalten in ländlichen Gemeinden: Forschungsbericht Erp-Projekt: 1: Ansätze zur Theorie und Methode*, 16–42. Berlin: Schmidt.
- Mattheier, Klaus J. 1995. Sprachwandel in Erp? In Iwar Werlen (ed.), *Verbale Kommunikation in der Stadt* (Tübinger Beiträge zur Linguistik). 263–276. Tübingen: Narr.
- Milroy, Lesley & Pieter Muysken (eds.). 1995. *One Speaker, Two Languages: Cross-Disciplinary Perspectives on Code-Switching*. Cambridge: Cambridge University Press.
- Moosmüller, Sylvia. 1991. *Hochsprache und Dialekt in Österreich: Soziophonologische Untersuchungen zu ihrer Abgrenzung in Wien, Graz, Salzburg und Innsbruck* (Sprachwissenschaftliche Reihe 1). Wien: Böhlau.
- Moosmüller, Sylvia. 1998. The process of monophthongization in Austria (reading material and spontaneous speech). *Papers and Studies in Contrastive Linguistics* 34. 9–25.
- Moosmüller, Sylvia. 2002. Der Stellenwert der phonologischen und phonetischen Variation in der Sprechererkennung. In Angelika Braun & Herbert R. Masthoff (eds.), *Phonetics and its applications: Festschrift for Jens-Peter Köster on the occasion of his 60th birthday* (Zeitschrift für Dialektologie und Linguistik: Beihefte 121). 97–109.
- Moosmüller, Sylvia & Hannes Scheutz. 2013. Der Vokalismus in den Stadtdialekten von Salzburg und Wien zwischen Monophthongierung und E-Verwirrung: Eine phonetische Studie. In Rüdinger Harnisch (ed.), *Strömungen in der Entwicklung der Dialekte und Ihrer*

- Erforschung. Beiträge zur 11. Bayerisch-österreichischen Dialektologentagung*, 83–89. Passau: Edition Vulpes.
- Moosmüller, Sylvia, Carolin Schmid & Julia Brandstätter. 2015. Standard Austrian German. *Journal of the International Phonetic Association* 45(3). 339–348.
- Moosmüller, Sylvia & Ralf Vollmann. 2001. „Natürliches Driften“ im Lautwandel: die Monophthongierung im österreichischen Deutsch. *Zeitschrift für Sprachwissenschaft* 20 (1). 42–65.
- Nakagawa, Shinichi & Holger Schielzeth. 2013. A general and simple method for obtaining R^2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution* 4(2). 133–142.
- R Core Team. 2018. *R: A language and environment for statistical computing*. Vienna: R Foundation for Statistical Computing.
- Scheuringer, Hermann. 1990. *Sprachentwicklung in Bayern und Österreich: Eine Analyse des Substandardverhaltens der Städte Braunau am Inn (Österreich) und Simbach am Inn (Bayern) und ihres Umlandes* (Beiträge zur Sprachwissenschaft 3). Hamburg: Buske.
- Scheutz, Hannes. 1985. *Strukturen der Lautveränderung. Variationslinguistische Studien zur Theorie und Empirie sprachlicher Wandlungsprozesse am Beispiel des Mittelbairischen von Ulrichsberg/ Oberösterreich* (Schriften zur deutschen Sprache in Österreich 10). Vienna: Braumüller.
- Schilling, Natalie. 2013. Investigating Stylistic Variation. In Jack K. Chambers & Natalie Schilling-Estes (eds.), *The handbook of language variation and change*, 2nd edn. (Blackwell handbooks in linguistics). 327–349. Oxford: John Wiley & Sons.
- Schilling-Estes, Natalie. 2002. Investigating Stylistic Variation. In Jack K. Chambers, Peter Trudgill & Natalie Schilling-Estes (eds.), *The handbook of language variation and change* (Blackwell handbooks in linguistics). 375–401. Oxford: Blackwell.
- Schmidt, Jürgen E. & Joachim Herrgen. 2011. *Sprachdynamik: Eine Einführung in die moderne Regionalsprachenforschung* (Grundlagen der Germanistik 49). Berlin: Erich Schmidt.
- Schönherr, Beatrix. 2016. Sprach- und Sprechformen zwischen Dialekt und Standardsprache. Empirische Untersuchungen auf einem wenig erforschten Terrain: Vorarlberg. *Zeitschrift für Dialektologie und Linguistik* 83(3). 315–355.
- Soukup, Barbara. 2009. *Dialect use as interaction strategy: A sociolinguistic study of contextualization, speech perception, and language attitudes in Austria*. Vienna: Braumüller.
- Steinegger, Guido. 1998. *Sprachgebrauch und Sprachbeurteilung in Österreich und Südtirol: Ergebnisse einer Umfrage* (Schriften zur deutschen Sprache in Österreich 26). Frankfurt am Main, Berlin, Bern, New York, Paris & Vienna: Peter Lang.
- Ulbrich, Christiane & Alexander Werth. in this volume. What is Intra-individual Variation in Language?
- Unger, Julia. 2014. *Der Nonstandard in Deutsch-Wagram. Unter Berücksichtigung der Orte Aderklaa und Parbasdorf*. Vienna: University of Vienna dissertation.
- Vergeiner, Philip C. 2019. *Kookkurrenz – Kovariation – Kontrast: Formen und Funktionen individueller Dialekt-/Standardvariation in universitären Beratungsgesprächen* (Schriften zur deutschen Sprache in Österreich 44). Berlin: Peter Lang.
- Vergeiner, Philip C., Dominik Wallner, Lars Bülow & Hannes Scheutz. 2020. Redialektalisierung und Alter. Ergebnisse einer real-time-Studie zum age-grading in Ulrichsberg. In Helen Christen, Brigitte Ganswindt, Joachim Herrgen & Jürgen E. Schmidt (eds.), *Regiolekt – Der neue Dialekt?: Akten des 6. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD)* (Zeitschrift für Dialektologie und Linguistik: Beihefte 182), 101–122. Stuttgart: Franz Steiner.

- Wallner, Dominik. in preparation. *Sprachwandel in Realtime am Beispiel von Ulrichsberg/Oberösterreich*. Salzburg: University of Salzburg dissertation.
- Werlen, Iwar. 2004. Domäne/Domain. In Ulrich Ammon, Norbert Dittmar, Klaus J. Mattheier & Peter Trudgill (eds.), *Sociolinguistics 1: An international handbook of the science of language and society*, 2nd edn. (Handbücher zur Sprach- und Kommunikationswissenschaft 3.1). 335–341. Berlin & New York: de Gruyter.
- Wiesinger, Peter. 1962–1969. *Ergänzungskarten zum Deutschen Sprachatlas (WEK): Nacherhebungen in Süd- und Osteuropa*. Marburg: Handgezeichnet.
- Wiesinger, Peter. 1988. *Das österreichische Deutsch* (Schriften zur deutschen Sprache in Österreich). Wien, Köln & Graz: Böhlau.
- Wiesinger, Peter. 2001. Zum Problem der Herkunft des Monophthongs *a* für Mittelhochdeutsch *ei* in Teilen des Bairischen. In Rudolf Bentzinger & Wolfgang Kleiber (eds.), *Sprachgeschichte, Dialektologie, Onomastik, Volkskunde: Beiträge zum Kolloquium am 3./4. Dezember 1999 an der Johannes-Gutenberg-Universität Mainz; Wolfgang Kleiber zum 70. Geburtstag* (Zeitschrift für Dialektologie und Linguistik: Beihefte 115). 91–126.
- Wiesinger, Peter. 2010. Deutsch in Österreich: Standard, regionale und dialektale Variation. In Christian Fandrych, Britta Hufeisen & Claudia Riemer (eds.), *Deutsch als Fremd- und Zweitsprache: Halbbd. 1* (Handbücher zur Sprach- und Kommunikationswissenschaft 35.1). 360–372. Berlin & New York: de Gruyter.

Lars Bülow, Andrin Büchler, Nicolai Rawyler, Christa Schneider,
and David Britain

Linguistic, Social, and Individual Factors Constraining Variation in Spoken Swiss Standard German

Abstract: This chapter explores linguistic, social, and individual factors constraining spoken Swiss Standard German. The empirical focus of this study is on the variables (k) and (ç), which are well-attested to vary both at the level of the Swiss German speech community as a whole and also at the level of individual speakers within the community. Our data are based on sociolinguistic interviews including informal conversations (comprehension-oriented) as well as reading and translation tasks (norm-oriented) from 16 adults ranging in age from 19 to 40 who were born and work in the city of Biel in North-West Switzerland. Results show that level of education and gender explain most of the variation present in the data, despite these factors not affecting (k) and (ç) equally. Language internal constraints only play a minor role. However, no systematic stylistic variation was found regarding the communicative orientation of the different language production tasks.

Based on these findings, this chapter furthermore addresses theoretical and methodological questions regarding systematic and non-systematic variation within individuals. In particular with respect to the results found at the level of the individual, it needs to be questioned whether (social) factors determining variation based on group averages can be generalised to individuals' behaviour. Hence, we argue in this chapter that variationist sociolinguists should be more careful when it comes to drawing inferences based on group-derived estimates only.

Keywords: Spoken Swiss Standard German, Variationist Sociolinguistics, Intra-individual Variation, Inter-individual Variation, Linguistic and Social Factors

1 Introduction

This chapter explores both systematic and non-systematic variation in spoken Swiss Standard German. To avoid terminological confusion, we use the term 'intra-

Acknowledgments: Stefan Kleiner deserves special mention for his support with data analysis. We further thank Simone Pfenninger, Alexander Werth and an anonymous reviewer for their comments on earlier drafts of this paper.

<https://doi.org/10.1515/9783110743036-005>

speaker variation' for those cases in which individuals systematically vary across different styles and/or discourses, while 'intra-individual variation' refers to the non-systematic variation of individual speakers within the same situation or the same style of speech. Whereas in variationist sociolinguistics, attention has always been given to intra-speaker variation (cf. e.g. Labov 1966, 1972; Bell 1984; Coupland 2001; Hernández-Campoy 2016), very few studies have focussed specifically on intra-individual variation which occurs in the same style of speech irrespective of the context, the situation, or the communication partner (cf. Bülow et al. 2019: 98; Bülow and Pfenninger 2021).

This is also true for variationist research on spoken Swiss Standard German, where the focus has either been on intra-speaker variation or on the inter-individual level of linguistic variability. While this research has largely acknowledged regional (e.g. Siebenhaar 1994; Guntern 2011), situational (e.g. Christen 2008; Hove 2017; Christen and Schmidlin 2019), and stylistic factors (e.g. Hove 2002, 2008a, 2008b) with respect to inter-individual variation and intra-speaker variation, intra-individual variation has largely been neglected.

The empirical focus of this study is on the variables (k) and (ç) which are well attested to vary within the Swiss German community and in the speech of individual speakers (e.g. Siebenhaar 1994; Hove 2002, 2008a, 2008b; Christen et al. 2010; Guntern 2012; AADG). For the realisation of (k), Swiss speakers use the aspirated plosive [k^h] and/or the affricate [kx]; for (ç), they mainly vary between the palatal fricative [ç] (known as the *ich*-sound) and the velar fricative [x] (known as the *ach*-sound). Although for the variables (k) and (ç) variation in spoken Swiss Standard German has been demonstrated many times, surprisingly little is known about the social parameters shaping that variation. Very few studies systematically examine sociolinguistic factors such as level of education, profession, or gender. Research is also required on the linguistic factors that constrain the use of (k) and (ç).

Adopting a variationist framework, the aim of this chapter is to explore the following questions: What factors influence the variability of (k) and (ç), in which way and how can this variation be characterised? Furthermore, this chapter addresses a number of theoretical and methodological questions regarding systematic and non-systematic variation within individuals. Therefore, the chapter discusses whether systematic and non-systematic variation within an individual's linguistic behaviour can be sufficiently explained by social factors and internal linguistic constraints. Our data for this study are based on sociolinguistic interviews, including stretches of conversation, two reading tasks, and translation tasks, gathered from 16 Biel-born adults (all working and living in Biel) ranging in age from 19 to 40.

In order to answer the above-mentioned questions, we first describe the distinctive language situation in German-speaking Switzerland. We then summarise research on spoken Swiss Standard German, with a particular focus on the phonetic variables (k) and (ç) (all Section 2). Our research design and methods are explained in Section 3. In Section 4, for each variable, we first report the results on inter-individual variation, before we go on to explain intra-speaker and intra-individual variation in more detail. Findings are discussed in detail in Section 5. Finally, Section 6 provides a brief summary of the main findings.

2 Swiss Standard German

The language situation in German-speaking Switzerland is relatively complex. Auer (2005: 7–42, 2011: 485–500) describes it as medial diglossia with an endoglossic standard.¹ Even though the standard language is used in the majority of the written media (newspapers, journals, official written statements), the dialect(s) is/are dominant in most spoken contexts. Dialect plays a far greater role in everyday life in Switzerland than the standard language, as it is used in almost all interactive constellations, even very formal ones and thus shows typical elements of a so-called *Ausbaudialekt* (cf. Kloss 1976; Christen and Schmidlin 2019). In addition, and unlike other dialect-standard-constellations within the German-speaking area, Swiss German dialects are not socially marked or even stigmatised (Christen and Schmidlin 2019: 209). Moreover, a Swiss-German dialect is the language of primary socialisation (first language acquisition). Speakers acquire an active competence of spoken and written Standard German gradually after entering school at the age of 7. Even though the spoken standard language is much more restricted than the dialect use, it plays an important role in German-speaking Switzerland. The choice of the spoken standard language is mostly determined by a) the situation in which the conversation takes place or by b) the addressee:

- a) The standard language is still the language of formal and official conversation (used in parliament and in the official news broadcasts on TV and radio) and the language of instruction within the Swiss educational system (Christen and Schmidlin 2019: 208). Oberholzer (2018) demonstrated in her study that the standard language is furthermore used in religious contexts but that

¹ Some researchers, however, proclaim a more bilingual than medial diglossic language situation for German speaking Switzerland (cf. Werlen 1998; Ender and Kaiser 2009; for a discussion see Christen and Schmidlin 2019: 209).

even there, dialects are very dominant. Some of her surveyed clergy tended to switch between standard language and dialect very often – within a sermon or even within a sentence.

- b) The spoken standard language is used if one of the conversation partners is not familiar with Swiss German dialects. Among each other, Swiss-Germans use their dialects only, since they are mutually intelligible. However, many Swiss-Germans have to use the spoken standard – spoken Swiss Standard German – in professional contexts. Werlen (2004: 15–21) points out, when discussing the results of the population census of 2000, that within the professional life of Swiss people, Standard German plays an important role. Around 45 % of those surveyed indicated that they regularly use Standard German in their workplace. The relationship between profession and the need to use Standard German is still strong today, as the results in Section 4 and their discussion in Section 5 will show.

Whereas the written form of Swiss Standard German is considered as a useful tool for reasons of uniformity, the spoken standard is subject of controversial discussions. Swiss-Germans often consider themselves to have an insufficient spoken mastery of the standard language and show a consistently positive attitude towards the standard language typically used in Germany (e.g. Herrgen 2015; Oberholzer 2018; Studler 2019). Having said that, Hove (2017) states that most German-speaking Swiss have an ambivalent relationship to the standard language: on the one hand, Federal German Standard German (the standard language of Germany) is considered “better”; on the other hand, a non-Swiss-coloured pronunciation of the standard language spoken by Swiss-Germans might also trigger negative reactions.

Controversy emerges at the phonetic-phonological level, i.e. when dialect-related features influence the spoken standard language, which is assumed to give the standard language a certain kind of Swissness (Hove 2002, 2008a). Some variants are only used in the dialect or only in the standard language. There are, however, certain variants which have made their way from the dialects into the standard. These variants shape the pronunciation of the standard language in particular ways and may give the standard use a certain degree of Swissness. Bear in mind that these variants can be used in the standard language beside variants that are strongly associated with the Federal German Standard variety. Thus, within the German-speaking parts of Switzerland, we have to expect the coexistence of variants that are perceived and accepted as Swiss German standard(s) (Hove 2002, 2008a). Following Dürscheid and Schneider (2019: 11), the various standards are defined as those varieties that are common and inconspicuous in supra-regional, more formal contexts. They are usually used with non-dialect

speakers as well as in formal situations (Dürscheid and Schneider 2019). According to this definition, the assignment of specific variants to the standard is based on whether these variants can be described as unmarked in these contexts – which, of course, often corresponds to frequency of use.

In this article, we focus on two variables, (k) and (ç), and their respective Swissness-transferring variants. In what follows, we first discuss factors of variation in spoken Swiss Standard German in general (Section 2.1), before we concentrate on variation of (k) (Section 2.2) and (ç) (Section 2.3).

2.1 Factors shaping variation in spoken Swiss Standard German

The specific use of a variant in spoken Swiss Standard German depends on a complex interaction of different factors. Appropriateness with regard to the situational context and the interlocutors, for example, appears to be particularly important (cf. Christen et al. 2010; Guntern 2012: 110–111). Thus, there seem to be certain situation-induced pronunciation conventions for speakers of Swiss (Standard) German (cf. Hove 2007). Hove (2002: 6–8, 2008a: 67) describes these conventions as “schweizerische Sprachkonventionen” (‘Swiss conventions of language use’), which are largely based on a set of socio-pragmatic rules particular to the diglossic situation found in German-speaking Switzerland (cf. Christen et al. 2010: 51).

Regarding situational factors, two influential studies, respectively by Hove (2002) and Christen et al. (2010), merit mention. Hove (2002) examined the use of Standard German by 61 younger and tertiary educated speakers of Swiss (Standard) German including a “formal” and a “norm-oriented” language production task. The “formal” language production task involved a free conversation in a school-like situation, while the “norm-oriented” language production was tested by a reading task. Christen et al. (2010) recorded Swiss (Standard) German in a “situation oriented towards comprehension” (*verständigungsorientiert*). They analysed (police) data drawn from emergency calls.² Comparing the results of Hove (2002) and Christen et al. (2010), situational differences can be found for most of the phonetic-phonological variables tested. These differences provide

² Note that the default variety for emergency calls according to Christen et al. (2010: 27) is not (Swiss) Standard German but Swiss German dialect. Standard German is mainly used if an interlocutor (i.e. one of the callers) is not proficient in Swiss German dialect. Thus, in their corpus, they found just 7.3 % of the conversations to have been held in (Swiss) Standard German alone (cf. Christen et al. 2010: 38).

empirical evidence for the existence of various norms of oralisation for Swiss Standard German (Hove 2002: 13; Christen et al. 2010; Studler 2019).

Kolly's (2011) study showed a correlation between attitudes towards Standard German and the degree of 'Swissness' of the accent. Kolly explained this relationship by the fact that Standard German represents an extended L1 ("erweiterte L1") for speakers of Swiss-German. According to her, this means that the speakers have a certain control over the accent or rather the intended degree of Swissness (Kolly 2011: 71). Thus, the use of Swiss Standard German might also be perceived differently, especially since variation within (and violations of) the conventions might cause mixed reactions (see Hove 2008a: 69, 2017). However, it is not just situational and attitudinal factors that affect the selection of variants in spoken Swiss Standard German. The use of certain variants also largely depends on sociolinguistic factors.

The stratification of linguistic variation according to sociolinguistic factors such as social class, gender, level of education, and profession belongs to those questions that always have been and remain at the core of variationist research (e.g. Labov 1966, 1972; Trudgill 1972, 1974; Mattheier 1980; Milroy and Milroy 1993; Romaine 2003). As research on German in Switzerland has long held that there are no differences in social status and, consequently, no associated variation (cf. Werlen 1988: 95; Rash 2002: 205), we will focus on the factors gender, level of education and profession as potential influencing factors.³

Although the social dimension of variation has increasingly been taken into account in recent work on dialects, only a few studies so far have examined the role of gender, level of education, and profession on variation in spoken Swiss Standard German. Regarding gender, one of the few exceptions is Hove's (2002) study, which was however not able to demonstrate gender-related variation at the phonetic-phonological level. She therefore concludes that potential gender-related differences are likely to be rather small (Hove 2002: 141). Similar findings are also discussed in Büchler et al. (accepted). Friedli (2005) and Hove (2007) show a connection between level of education, profession and language use: Friedli (2005) found that Swiss people with higher education are more likely to accept variation than Swiss-Germans who are less educated. So far, there has been hardly any empirical evidence of educational or profession-related differences in spoken Swiss Standard German. Hove (2007) relates profession to the degree of experience in using Standard German. She argues that individuals having little routine of using Standard German in their professional lives (and in their personal networks) are more likely to transfer dialectal features to

³ Gender is operationalised as sex (male vs. female) and not as social gender roles.

Standard German. This is in accordance with Werlen's (2004: 21) observation that there is a relationship between profession, level of education and the quantity of standard use.

Finally, Siebenhaar's (1994) study on variation in spoken Swiss Standard German also indicates that variation might be regionally distributed. He found regional differences in the use of the standard language in the three regions of Berne, Zurich and St. Gallen (Siebenhaar 1994: 54). A regional distribution of various variants in spoken Swiss Standard German is also confirmed by the *Atlas zur Aussprache des deutschen Gebrauchsstandards* (= AADG, 'Atlas of Standard German Pronunciation').

As already pointed out above, variation is particularly relevant for variables whose variants are available in both the standard and the dialectal feature pool. As previous studies have shown, this applies in particular to the target variables of this study: (k) and (ç). Previous research on variation with respect to these two variables in spoken Swiss Standard German will be discussed in the next two sections.

2.2 The (k) variable

For the phonetic-phonological variable (k), variation between plosive [k^h] and affricate [kx] is found in Swiss Standard German (see e.g. Siebenhaar 1994; AADG). While plosive [k^h] is also common in Federal German Standard German, affricate [kx] is said to be a marker of Swiss Standard German (cf. Christen 2008; Guntern 2012: 104). This is due to the fact that the variant has been transferred to spoken Swiss Standard German from High and Highest Alemannic dialects spoken mainly in Switzerland (cf. Guntern 2012: 104). Note, therefore, that the affricate [kx] is only common in the southernmost dialects of the German speaking area (i.e. Alemannic and South [Central] Bavarian dialects) (cf. AADG; Sonderegger 2003: 263). In contrast, the aspirated plosive [k^h] appears only around Basel and the Churer Rheintal in Swiss German dialects; everywhere else in German-speaking Switzerland, [k^h] is clearly a standard feature (only).

Previous research into (k) variability in spoken Swiss Standard German has shown that variation is determined by regional, situational and stylistic factors. Drawing on data from Berne, Zurich and St. Gallen, Siebenhaar (1994: 44–45) reveals some regional variation: speakers from Zurich, in their use of Standard German, are most likely to produce the variants we would also expect from German speakers (i.e. [k^h]). However, as he notes, the results are somewhat biased by a single speaker from St. Gallen who accounted for the majority of affri-

cates in this particular location. This already demonstrates the existence of intra-individual variation and inter-individual differences in (k) variability. Siebenhaar (1994: 44) further draws attention to internal factors being crucial: word-initial *k* was most likely to be produced as a plosive in his sample. The two maps of the AADG for (k) in word-initial position – using *kalt* ‘cold’ and *Kot* ‘faeces’ as stimuli in a word list reading task – show [k^h] to be preferred all over German-speaking Switzerland. [kx] is rarely used, but if it is, then such use is mainly in the West – for example in the city of Biel.

Other studies discuss situational factors (see Hove 2002, 2007; Christen 2008; Christen et al. 2010). There is strong evidence that communicative orientation, and thus the degree of formality of the situation in which the interaction takes place, determines variation between plosives and affricates. Speakers are less likely to produce affricates when reading or in formal conversations (norm-oriented language production tasks), whereas, in informal conversations (comprehension-oriented language production tasks), more affricates seem to be produced (see Table 1; Christen et al. 2010: 151).

Table 1: The variable (k) in different corpora (drawn from Christen et al. 2010: 151).

	Standard, oriented towards comprehension ^a		Norm-oriented Standard (spoken) ^b		Norm-oriented Standard (read) ^b	
[k ^h]	314	64 %	337	96 %	359	98 %
[kx]	173	36 %	15	4 %	7	2 %
Total	487	100 %	352	100 %	366	100 %

^a Christen et al. (2010),

^b Hove (2002).

Finally, Christen (2008: 15; Christen et al. 2010: 151) also points towards inter-individual variation. For her, therefore, whether individuals rather use affricates or plosives also comes down to individual stylistic practices. This is also why she terms the affricated variant a sociolinguistic stereotype (in Labov’s understanding of the term), which speakers can use to index their Swiss (German) identity or their Swissness (cf. Christen 2008).

To conclude, the variable (k) in spoken Swiss Standard German has received some scholarly attention already. However, even though a number of social and linguistic factors determining variation between plosive and affricate have been put forward, inter-individual variation is nevertheless recurrently mentioned in the literature. Therefore, we think that it is indispensable to look more systematically at individual speakers and how they vary across the two variants.

2.3 The variable (ç)

In the case of variation between [ç] and [x], the situation is somewhat different, since none of the variants is exclusive to Swiss Standard German, as was the case with the variable (k) in Section 2.2. Both sounds, [ç] and [x] are used in Swiss Standard German as well as in Federal German Standard German. In Federal German Standard German, the relevant factor determining the distribution of [ç] and [x] is the preceding sound. To put it simply, we find a palatal fricative [ç] when preceded by front vowels (e.g., /i/ or /ɛ/) or the sonorants /l/, /m/, /n/ and /r/ and a velar fricative [x] when preceded by back vowels (e.g., /o/ or /u/) (cf. Siebs 1969: 61–63). This is where speakers of Swiss Standard German deviate from speakers of Federal German Standard German: Swiss-Germans tend to ignore the complementary distribution in some instances, supposedly motivated by transfer from Swiss German dialects in which [x] (or even [χ]) is used consistently irrespective of the preceding sound across nearly the whole speaking area (Christen 2008; Christen et al. 2010: 152; Guntern 2012: 104). We will only focus on cases where, according to the Federal German Standard, palatal fricative [ç] ought to be used (= variable (ç)). If the velar fricative [x] is used in these phonetic-phonological contexts, it is argued to be a Swiss shibboleth (Christen 2008; Christen et al. 2010: 152). Thus again, the velar fricative [x], like the affricate [kx], has the potential to index a certain Swissness.

There are some studies which have focused on the variable (ç) already. In the Swiss corpus of the AADG, for example, 20 % of the participants use velar fricatives [x] (or similar sounds) in the particular phonetic contexts mentioned before when reading a word list. The maps for *rötlich* ‘reddish’, *schädlich* ‘harmful’, *weich* ‘soft’, and *Seuche* ‘plague’, for instance, indicate the use of velar fricatives for the city of Biel. Here, velar fricatives also appear after /l/ as in *Milch* ‘milk’ or /r/ as in *Kirche* ‘church’.

However, not all studies have found variation to occur. Siebenhaar (1994: 48) as well as Hove (2002) found the variable to be produced almost exclusively as a palatal fricative (Hove 2002: 100 for 94 % of the tokens). In Hove’s (2002) study, this might be explained by the nature of her sample. She focused on young (highly) educated speakers interviewed in formal situations (Hove 2002: 43). Other studies (see Hove 2007; Christen 2008; Christen et al. 2010) found (ç) to be highly variable when speakers were recorded in informal situations. This becomes apparent in Table 2, where results from the corpus based on the speech of police officers handling emergency calls (cf. Christen et al. 2010) are compared to Hove’s (2002) results. Whilst the speech of police officers according to Christen et al. (2010: 152) might be said to be oriented towards comprehension (i.e. rather informal) due to the circumstances in which the conversations take place, Hove’s (2002) analysis is clearly based on norm-oriented speech (i.e. formal speech).

Table 2: The variable (ç) in different corpora (drawn from Christen et al. 2010: 152).

Duden (norm)	(ç) = [ç]		
Example	<i>nicht, ich</i>		
	Standard, oriented towards comprehension ^a		Norm-oriented Standard ^b
[ç]	189	47 %	94 %
[x]	183	46 %	5 %
[χ]	19	5 %	0 %
[ʏ/ɨ]	4	1 %	1 %
[]	2	1 %	0 %
other	1	0 %	0 %
Total	398	100 %	100 %

^a Christen et al. 2010,

^b Hove (2002).

Looking at this comparison, the question, however, needs to be raised whether formality alone explains these huge differences or whether other factors such as gender or educational level, for which the two samples compared above are not balanced, might also play a role. Furthermore, as Christen et al. (2010: 152) highlights, the degree of inter-individual differences is high in the emergency calls corpus. There are some speakers who hardly use any velar variants and others who nearly exclusively use velar variants.

To sum up, previous research suggests that communicative orientation or rather formality is the most important factor when considering variation between [ç] and [x] in spoken Swiss Standard German. However, there are very few studies indeed on the impact of other (social) factors. In addition, despite the role of inter-speaker-variation having been emphasised (see Christen et al. 2010), no systematic analysis of this factor has been conducted yet. So, in addition to determining the importance of social factors such as education level and gender, we think it is important to look at intra-individual variation more thoroughly, so as to assess whether any differences found at the group level are caused by a few speakers skewing the results in one direction or another.

3 Methods

In order to be able to address our research questions, we first and foremost take a quantitative variationist approach in this study (cf. Labov 1972). We gathered and analysed the speech production data of 16 speakers in a sociolinguistic interview

comprising different language production tasks. These various tasks were implemented because they are assumed to indicate different levels of communicative orientation and thus different levels of attention to speech that might affect the variation of (k) and (ç). Drawing from Hove (2002, 2007, 2008a) and Christen et al. (2010), we regard communicative orientation to be a proxy for the amount of attention to speech speakers pay to solve different communicative tasks (in the spirit of Labov 1972). Accordingly, norm-oriented language production tasks like formal conversations and reading tasks should require more attention to speech than comprehension-oriented tasks like informal conversations. Therefore, we start from the following hypothesis: In informal conversations, the speakers tend to use a) more affricated variants (= [kx] for (k)) and b) more velarised variants (= [x] for (ç)) than in the reading and translation tasks. It should, however, be noted that basically all tasks within the sociolinguistic interview in which the speakers were asked to use Standard German require a relatively high level of attention to speech compared to free conversations in Swiss German dialects (see Section 2).

Furthermore, we try to illuminate the intra-individual variation of the speakers by complementing the quantitative group-level results with rather qualitative case studies of individual speakers who show patterns of variation that clearly deviate from the group-level means. We connect these individual-based findings to data from a sociolinguistic questionnaire in which we have collected socio-demographic information as well as data on language attitudes.

3.1 Materials and procedure

The sociolinguistic interviews conducted in the present study lasted between 18 and 22 minutes and were comprised of five different parts. The sequence as listed in Table 3 was maintained for every individual interview conducted.

Table 3: Structure and tasks of the sociolinguistic interview.

Sequence	Tasks	Length
1	Informal conversation	5–12 minutes
2	Reading task: newspaper text	ca. 3 minutes
3	Reading task: composed text	ca. 2 minutes
4	Translation task	ca. 3 minutes
5	Sociodemographic questionnaire	ca. 5 minutes

Before starting the sociolinguistic interview, participants were involved in a short warm-up-conversation (off-record) which was intended to help the interviewer and interviewee to get used to each other. Furthermore, the tasks and the purpose of the interview were clarified. So, the interviewer explained that the project deals with spoken Standard German, however, without being explicit about which variables are specifically under investigation. All interviews were conducted by the same interviewer, who grew up in the same city as the participants. Throughout the whole sociolinguistic interview, he stuck to Standard German. His variety of Standard German might be termed moderately Swiss-accented (cf. Guntern 2012: 106); however, he tried not to use any affricated variants of (k) nor any velar variants of (ç).

The sociolinguistic interviews started with an informal conversation. Participants were asked about their everyday life with special respect to languages and varieties used. The interviewer, for example, inquired whether they needed to communicate in other languages than German at work or how important spoken Standard German was at work. Furthermore, the conversation also contained questions on hobbies and personal interests. All questions were rather open-ended so as to encourage interviewees to narrate a lot. In our view, the informal character of this conversation is rather important to emphasise, since participants are not used to speaking Standard German to other speakers of Swiss German. Whilst of course not being able to entirely bypass this pragmatic hurdle, we at least wanted to make sure that participants felt as relaxed as possible in order to collect speech that is as informal as one can get from speakers of Swiss German speaking Standard German.

After the informal conversation, participants were confronted with the two reading tasks and the translation task (see texts in the appendix). Firstly, they were asked to read a newspaper text and then a text composed by us, which in its phrasing resembled a fairy tale. The newspaper text was drawn from the *Neue Zürcher Zeitung* (NZZ). We chose a specific article, as it best served our needs with respect to the two variables discussed in this chapter. In the same spirit, the second text was composed in such a way that the two target variables would occur frequently enough without disrupting the character of the story told. Finally, in the translation task, participants were asked to translate orally nine sentences from Bernese German to Standard German. There was no time limit. Furthermore, no isomorph translation was demanded. This means that participants decided by themselves which translation would be most correct or appropriate.

In sum, the texts and sentences used in the reading and translation tasks not only ensured that the two target variants would occur frequently but also that they would occur in different phonological environments (pre- and postvocalic, pre- and postconsonantal etc.). We were also able to consider the position of the

variables within individual words (word-initial, -medial, and -final) as well as with respect to the syllable structure, i.e. whether the variable was in the onset (e.g. *Ver-käu-fer* ‘salesman’) or in the coda (e.g. *Werk-statt* ‘work shop’).

The sociolinguistic interview ended with an online questionnaire that participants had to complete on a mobile phone or tablet. This questionnaire was designed to elicit sociodemographic data as well as data on language attitudes by means of 7-point Likert scales.

3.2 Participants

We recruited 16 speakers from the city of Biel aged between 19 and 40 ($\bar{M} = 26.6$, $SD = 3.5$). Of these 16 speakers, 8 were female and 8 male. Furthermore, the sample was equally balanced across two educational levels (secondary- and tertiary-educated) (see Table 4).

Table 4: Distribution of speakers according to level of education and gender.

16 speakers	Female	Male
secondary-educated	4	4
tertiary-educated	4	4

Secondary-educated means that speakers had completed nine years of compulsory schooling as well as a grammar school or, alternatively, some further training (an apprenticeship in the Swiss educational system). We also considered *höhere Fachschulen* to be in the realm of secondary education. Tertiary-educated speakers had accordingly attended university or some kind of (*Fach-*)*Hochschule*.

In order to avoid different substrate varieties of Swiss German having an impact on our findings, a great deal of attention was paid to homogeneity with respect to the L1 of the participants. All participants grew up in Biel, the second largest city (55,100 residents) in the canton of Berne. This means that all of them are L1 speakers of a Bernese German variety. 75 % of all participants also had both parents originating from the Biel-Seeland region. The other 25 % had one or both parents originating from other regions in Switzerland. Of these four participants, one had parents who grew up in Grenchen (18 km from Biel) and there was one whose parents are from Solothurn (29 km from Biel). The father of the third originates from the canton of Valais (approx. 200 km from Biel) and the fourth one has an L1 Spanish father, but a mother from Biel. This was the only

participant who grew up bilingually. Consequently, 93.8 % of participants were raised and educated in Bernese German only. Speakers acquired an active competence of spoken and written Standard German gradually after entering school at the age of 7.

Owing to Standard German being the mode of instruction and a subject of instruction in school, each participant should have a good command of spoken Standard German. When it came to their self-assessment of their competence (*How well do you speak Standard German* in the questionnaire), participants on average indicated 4.6 (SD = 1.1) on a 7-point Likert scale (1 = very badly / 7 = very well).

3.3 Analysis

The two phonetic variables discussed in this paper (k) and (ç) were analysed auditorily by the first three authors of the study. Two of them are Swiss and have grown up speaking Swiss German and Swiss Standard German (one monolingually and one bilingually, alongside Romansh). The third author speaks neither any Swiss German (dialect) nor Swiss Standard German since he was born in the northern part of Germany (Rostock). Since 2017, however, he has spent a good deal of time in Berne and hence has become used to Swiss Standard German in conversation with Swiss speakers.

Since the affricated variant [kx] found for the variable (k) proved to be difficult to distinguish from the plosive variant [k^h] in some instances, the authors involved in coding this variant met for some coding training. Furthermore, about 15 minutes of speech data was coded independently in order to be able to check whether results would coincide. Except for one token, the coders in fact obtained the same results. The second variable (ç) proved to be less problematic to code, since palatal sounds and velar sounds are more readily distinguishable. Furthermore, unlike for the first variable, the provenance of the coders was less of an issue, since the palatal variant [ç] and the velar variant [x] are also common in spoken Federal German Standard German (the L1 of one of the coders). In order to further control the coding process, each coder analysed speech of female and male as well as of secondary- and tertiary-educated participants.

Statistical analysis was carried out by means of the Software R (R Core Team 2019). We applied General Linear Mixed Effects Models (GLMM) (package *lme4* [Bates et al. 2018]) including the random intercepts speaker and lemma (if necessary and motivated by means of likelihood-ratio-tests), in order to control for speaker-bound effects as well as lexical effects (see Section 4). Results are visualised by diagrams created with the package *ggplot2* (Wickham et al. 2018).

4 Results

Working on inter- and intra-individual variation in language entails researchers being aware that a) language variation is an outcome of a combination and interplay of complex conditions, b) different variables can produce the same outcome, c) the outcome is largely context- and time-dependent, d) the outcome could turn out to be markedly different depending on whether one was looking at the individual or at the group level.

In this section, we try to take into account most of the above-mentioned aspects. We will present the group-level results for each variable separately. We begin by describing our findings for (k) (Section 4.1), which will then be followed by our findings for (ç) (Section 4.2). The subsequent section (4.3) focuses on the variability within the individual speakers for both variables together. In considering intra-individual variation, i.e. variability of individual speakers in the same situation or the same style of speech, we also address the question of whether inter-individual difference can be explained by means of in-depth analyses.

4.1 Variation of (k)

The (k) realisations of the 16 speakers were evaluated statistically with regard to three different models (see Section 3.3 for details). The first model is comprised of controlled data originating from the reading and translation tasks (see Appendix, text 1–3) comprising 790 tokens (see Table 5), i.e. on average 49 (k) realisations per speaker. The second model covers the informal conversations (uncontrolled data) which produced 540 tokens (see Table 5), an average of 33.8 (k) realisations per person (SD = 16.4). The third model integrates both the controlled and the uncontrolled data based on a total of 1,330 tokens.

Table 5: Distribution of (k) variants in the different models.

16 speakers	Model 1 controlled data		Model 2 uncontrolled data		Model 3 integrated data	
	n = 790	% of total	n = 540	% of total	n = 1330	% of total
affricate [kx]	143	18.1 %	83	15.4 %	226	17 %
plosive [k ^h]	647	81.9 %	457	84.6 %	1104	83 %

In each of the three models, the level of education (secondary vs. tertiary), gender (male vs. female) and the phonological environment served as fixed effects. We will discuss these independent variables in Section 4.1.1. Furthermore, individual speakers and lemmas were added as random intercepts in models 2 and 3. Models 1 and 3 also take into account the type of language production task (reading a newspaper text vs. reading a composed text vs. translation task vs. informal conversation) as an additional fixed effect. We will have a closer look at this independent variable in Section 4.1.2 when discussing intra-speaker variation.

4.1.1 Group-level variation

The results for the realisation of (k) at the group level are quite clear. In both the controlled and the uncontrolled data, the use of the plosive [k^h] clearly outweighs the use of the affricate [kx] (see Table 5). With regard to the independent variables tested, all three models show no significant differences for the variables gender and phonetic-phonological environment. Significant differences (i.e. $p < 0.05$) can only be found in respect of level of education (see Table 6). Effect size measurements for the (integrated) Model 3 show that the fixed effects explain 23 % of the variance in the data ($r^2 = 0.229$). This value rises to 59 % if we consider individual speakers and lemmas as random effects ($r^2 = 0.592$).⁴

Since little is known about the influence of education on variation in spoken Swiss Standard German (see Section 2.1), level of education is one of the central variables of this study. As explained in Section 3.2, the speakers have either a secondary (8 speakers) or a tertiary (8 speakers) level of education. Secondary education means that the speakers have attended secondary school (*höhere Fachschulen*) or completed some further training (apprenticeship) after the compulsory nine-year school period. Tertiary education includes attending a university or some kind of (*Fach-*)*Hochschule*. As already mentioned above, the data revealed significant differences for level of education in all three models (see Table 6). In all settings, secondary-educated speakers more often used the affricate [kx] than tertiary-educated speakers. On average, speakers with a secondary education used the affricate [kx] in 28.9 % of cases, whereas speakers with tertiary education used this variant only in 5.7 % of cases (see Table 6).

⁴ R^2 coefficients were measured with the help of a procedure proposed by Nakagawa and Schielzeth (2013) for mixed-effects-models (implemented in the R-package *performance* [Lüdtke et al. 2020]).

Table 6: Distribution of the variants of (k) in the different models according to level of education.

16 speakers	Variant	Model 1 controlled data ($\beta = -2.26$, $z = -2.634$, $p < 0.01$)		Model 2 uncontrolled data ($\beta = -2.49$, $z = -2.285$, $p < 0.05$)		Model 3 integrated data ($\beta = -2.19$, $z = -2.744$, $p < 0.01$)	
		n	% of total	n	% of total	n	% of total
secondary	affricate [kx]	125	31.4 %	62	24.8 %	187	28.9 %
	plosive [kʰ]	273	68.6 %	188	75.2 %	461	71.1 %
tertiary	affricate [kx]	18	4.6 %	21	7.2 %	39	5.7 %
	plosive [kʰ]	374	95.4 %	269	92.8 %	643	94.3 %

Note that these differences remain highly significant even if we consider speaker (motivated by likelihood-ratio test for model 3, $\chi^2(1) = 245.15$, $p < 0.001$) as a random effect.

Regarding gender on the group level, it is noteworthy that male and female speakers behave surprisingly similarly in the different settings. The distribution of their (k) realisations is almost identical. This also holds true when taking into account the interaction between the variables gender and level of education (see Figure 1).

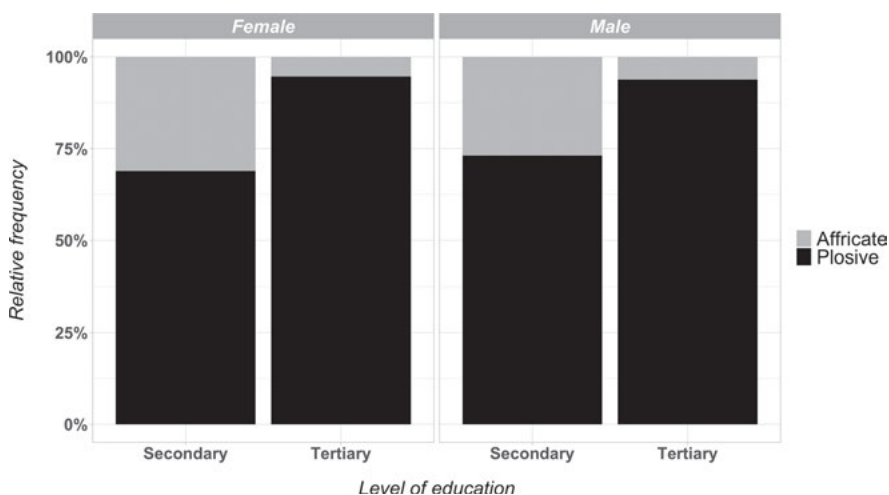
**Figure 1:** Distribution of the variants of (k) according to gender and level of education in Model 3 ($n = 1,330$).

Table 6 and Figure 1, however, hide the substantial inter-individual differences in the data. The patterns found at the group level with respect to education and gender are not reflected in all speakers equally. The inter-individual differences become visible in Figure 2 and will be further discussed in Section 4.3.

Furthermore, we wanted to investigate whether the phonetic-phonological environment affects the realisation of (k) in our data set. Therefore, three factors were operationalised: the position of (k) with respect to the individual word (word-initial, -medial, and -final), its position with respect to the syllable structure (onset and coda), and its immediate phonetic-phonological environment, i.e. pre- and postvocalic and pre- and postconsonantal (further differentiated between liquids, nasals and obstruents).⁵ None of the factors was found to influence variation. Table 7, for example, shows that there is no statistically significant correlation between the position of the (k) tokens within the word and its concrete implementation as a plosive or affricate. Results for preceding and following sounds are to be found in the appendix (see Appendix Table 17).

Table 7: Distribution of the variants of (k) according to their position within the word in Model 3 (n = 1,330).

16 speakers	Variant	Model 3 integrated data (n.s.)	
		n	% of total
word-initial	affricate [kx]	140	18.5 %
	plosive [kʰ]	618	81.5 %
word-medial	affricate [kx]	77	15.5 %
	plosive [kʰ]	420	84.5 %
word-final	affricate [kx]	9	12 %
	plosive [kʰ]	66	88 %

⁵ We did not differentiate between stressed and unstressed instances owing to the low number of (k) realisations in unstressed contexts in the reading tasks.

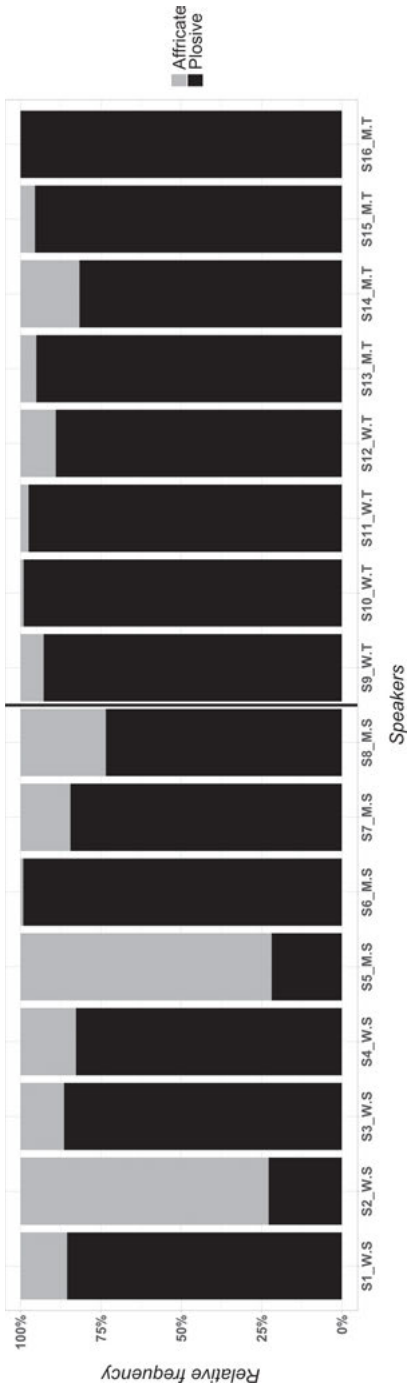


Figure 2: Distribution of variants of (k) with respect to the individual speakers in Model 3 (n = 1,330); M = Male, W = Female, T = Tertiary educated, S = Secondary educated.

Our analyses also show lexeme-specific effects for models 2 and 3. This can be inferred from the fact that the lemma is motivated as a random effect in both models by a likelihood-ratio-test (model 2 [$\chi^2(1) = 8.039, p < 0.01$], model 3 [$\chi^2(1) = 8.372, p < 0.01$]). Thus, we might say that there is a correlation between some frequently occurring lexemes in our corpus and the degree of variation of (k). For example, in the informal conversations, *kommen* ‘to come’ (n = 36) and *können* ‘to be able to do sth.’ (n = 83), both frequently occurring verbs, tend to be affricated somewhat more often by secondary-educated speakers (36.8 %). Vice versa, for tertiary-educated speakers, the degree of affrication in these two words (2.5 %) is remarkably low.

Taken together, the group-level data show significant differences only for the variable level of education. No significant differences can be found for gender and the phonetic-phonological environment. However, as Figure 2 indicates, we need to take into consideration significant inter-individual differences.

4.1.2 Intra-speaker variation

Some studies have shown that the degree of formality (and thus also the degree of attention to speech) associated with specific language production tasks needs to be taken into account to explain variation in spoken Swiss Standard German (e.g. Hove 2002, 2008a, 2008b; Christen 2008; Christen et al. 2010; see Section 2.1). The results of Hove (2002) and Christen et al. (2010) suggest that degree of formality correlates with the communicative orientation different language production tasks seem to require (see Tables 1 and 2). Reading tasks and formal school conversations are shown to elicit highly norm-oriented speech (*Normorientierung*) (Hove 2002) whereas (informal) conversations are found to evoke speech oriented towards comprehension (*Verständigungsorientierung*) (Christen et al. 2010). Thus, we expect to find similar results in our data. Bear in mind that (k) realisation was tested in four different language production tasks indicating different degrees of formality: highly norm-oriented tasks (reading and translation) and a comprehension-oriented task (informal conversation).

The results at the group level can briefly be summarised as follows: the statistical models show no significant differences between the language production tasks, either when the language production task is considered as a simple independent variable (see Table 8), or when it is regarded in interaction with the significant variable level of education (see Section 4.1.1). Surprisingly, most affricated variants are produced in the highly norm-oriented reading (18.8 % and 18.2 %) and translation tasks (16.7 %). Somewhat fewer can be found in the comprehension-oriented informal conversation (15.4 %).

Table 8: Distribution of the variants of (k) according to language production task in Model 3 (n = 1,330).

16 speakers	Variant	Model 3 integrated data (n.s.)	
		n	% of total
informal conversation	affricate [kx]	83	15.4 %
	plosive [k ^p]	457	84.6 %
reading a newspaper text	affricate [kx]	54	18.8 %
	plosive [k ^p]	234	81.2 %
reading a composed text	affricate [kx]	64	18.2 %
	plosive [k ^p]	288	81.8 %
translation task	affricate [kx]	25	16.7 %
	plosive [k ^p]	125	83.3 %

Even though there are relatively similar mean values for each language production task at the group level, again strong inter-individual differences are found, as Figure 3 indicates. With respect to the three speakers who show the greatest degree of variation between plosives and affricates, Figure 3 visualises differences between the four tasks at the individual level. However, no pattern can be found that would support the underlying attention-to-speech hypothesis (see Section 3). Rather, each of the three speakers shows very individual preferences as to when to use the two (k) variants. While speakers S2 and S5, for example, show significantly more (k) affrication in the informal conversation than in the reading tasks and in the translation task, such differences cannot be found for speaker S8.

In sum, the group-level data show no significant intra-speaker variation according to the four different language production tasks. This does, however, not mean that the 16 speakers show uniform patterns of variation in each task. On the contrary, Figures 2 and 3 illustrate high individual differences in the use of the variants of (k) in the different tasks.

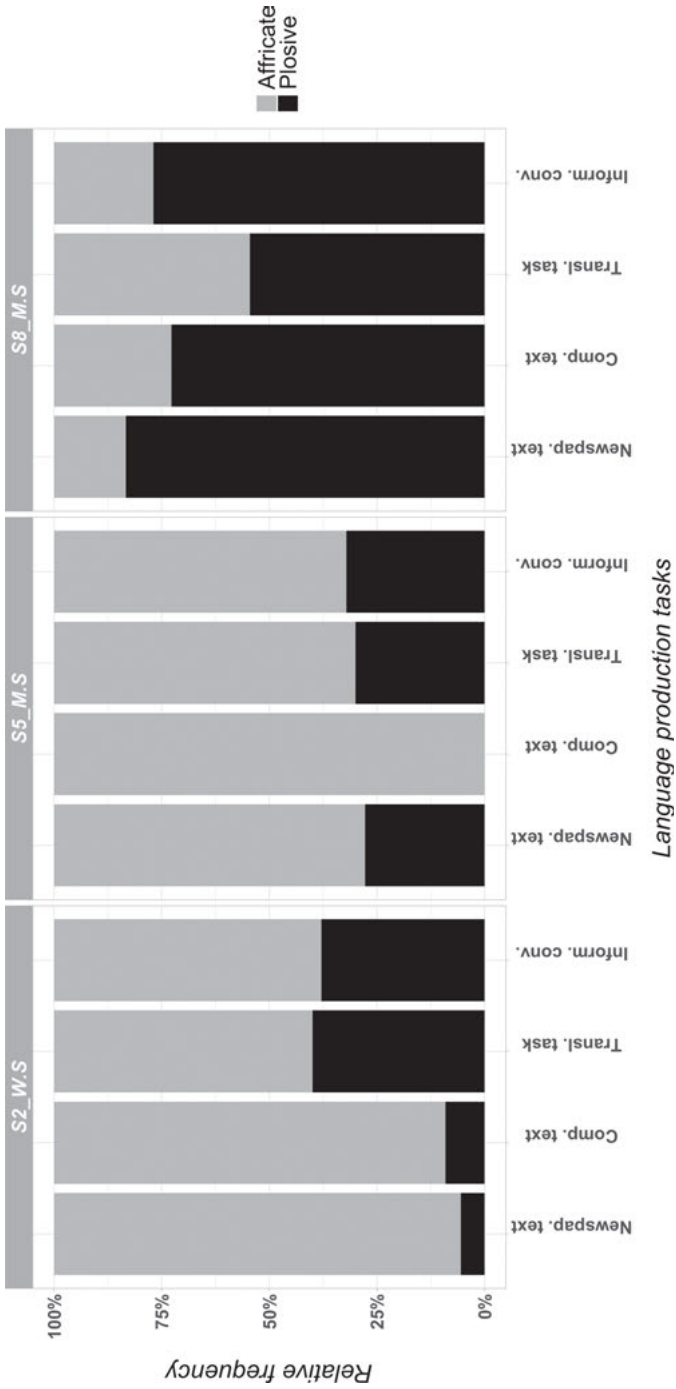


Figure 3: Distribution of the variants of (k) in the four language production tasks according to three selected speakers (n = 221).

4.2 Variation of (ç)

The (ç) realisations were also statistically evaluated by means of three different models (see Section 3.3 for details). Again, the first model comprises controlled data originating from the reading and translation tasks (see Appendix, text 1–3), including 463 tokens (see Table 9), i.e. on average 29 realisations of (ç) per speaker. The second model includes the informal conversation (uncontrolled data), in which the speakers produced 403 tokens (see Table 9) with an average of 25.2 realisations of (ç) per person (SD = 13.9). Thus, the integrated third model of both the controlled and the uncontrolled data is based on a total of 866 tokens. The 866 realisations of (ç), however, do not include all cases in the corpus in which realisations of (ç) were theoretically possible. On the one hand, we excluded all cases of coronalisation in which the voiceless palato-alveolar fricatives [ç] and [ç̥] appeared for (ç) (n = 121). These variants of (ç), usually associated with Rhine Franconian dialects in Germany (cf. AADG) and the contemporary multi-ethnolect *Kiezdeutsch* (cf. Jannedy et al. 2019: 134), were only used by speaker S6. Secondly, we separately analysed all 472 tokens of the pronoun *ich* 'I'. This is due to the high frequency of this lexeme in the informal conversational data which would significantly influence the statistics. Again, 50 realisations were excluded because they appeared as a coronalised palato-alveolar fricatives [ç] or [ç̥] in the speech of speaker S6. Thus, 422 tokens of the pronoun *ich* 'I' were considered in the statistics (see Table 9).

Table 9: Distribution of the variants of (ç) in the different models.

16 speakers	Model 1		Model 2		Model 3		(ç) realisations in the word <i>ich</i> 'I'	
	controlled data		uncontrolled data		integrated data			
variant	n = 463	% of total	n = 403	% of total	n = 866	% of total	n = 422	% of total
palatal [ç]	319	68.9 %	310	76.9 %	629	72.6 %	347	82.2 %
velar [x]	144	31.1 %	93	23.1 %	237	27.4 %	75	17.8 %

As for the variable (k), level of education (secondary vs. tertiary), gender (male vs. female) and the phonological environment serve as independent variables in each of the three models (see Section 4.2.1). We integrated individual speakers as a random effect. To analyse possible intra-speaker variation, Models 1 and 3 also take into account the type of language production task (reading a newspaper text vs. reading a composed text vs. translation task vs. informal conversation) as an independent variable (see Section 4.2.2). Finally, intra-individual variation and inter-individual differences will be analysed in more detail in Section 4.3.

4.2.1 Group-level variation

The results at the group level show that the use of the palatal fricative [ç] clearly predominates in both the controlled and the uncontrolled data (see Table 9). This is very similar to what we found for the variable (k), where [k^h] also outperformed [kx] in all three models. Effect size measurements for the integrated Model 3 show that the fixed effects explain 25 % of variance in the data ($r^2 = 0.251$). This value rises to 70 % if we consider speaker as a random effect ($r^2 = 0.7$).

However, regarding the influence of the independent variables, results are much more complex. If fixed effects models are used, significant results for the level of education (e.g. Model 3, $\beta = 0.932$, $z = 5.182$, $p < 0.0001$) and gender (e.g. Model 3, $\beta = -1.46$, $z = -8.321$, $p < 0.0001$) can be found in all three models. Furthermore, the interaction of gender and level of education has been found to be significant: whilst secondary educated female participants used significantly more velar variants (e.g. Model 3, $\beta = 2.044$, $z = 6.028$, $p < 0.0001$) than tertiary educated females, there is no such effect for male participants. This is particularly marked in the uncontrolled data (Model 2).

Table 10: Distribution of the variants of (ç) in the different models according to level of education and gender.

16 speakers	Variant	Model 1 controlled data		Model 2 uncontrolled data		Model 3 integrated data	
		n	% of total	n	% of total	n	% of total
Secondary	palatal [ç]	152	60.8 %	124	62.0 %	276	61.3 %
	velar [x]	98	39.2 %	76	38.0 %	174	38.7 %
Tertiary	palatal [ç]	167	78.4 %	186	91.6 %	353	84.9 %
	velar [x]	46	21.6 %	17	8.4 %	63	15.1 %
Gender	variant	n	% of total	n	% of total	n	% of total
Male	palatal [ç]	119	55.3 %	89	54.3 %	208	54.9 %
	velar [x]	96	44.7 %	75	45.7 %	171	45.1 %
Female	palatal [ç]	200	80.6 %	221	92.5 %	421	86.4 %
	velar [x]	48	19.4 %	18	7.5 %	66	13.6 %

As soon as we integrate speaker as a random effect, however, only gender turns out to be a robust predictor in all three models (e.g. Model 3: $\beta = -2.59$, $z = -2.219$, $p < 0.05$) (see Figure 4).

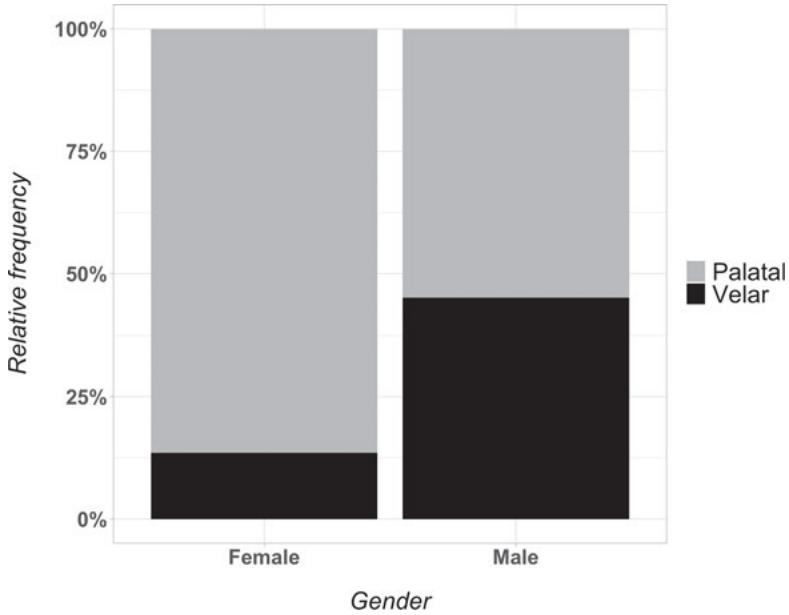


Figure 4: Distribution of the ζ -variants according to gender in Model 3 (n = 866).

Level of education and the interaction between level of education and gender are not significant in the random effects models applied. This is due to the inter-individual differences in the data (see Figure 5).

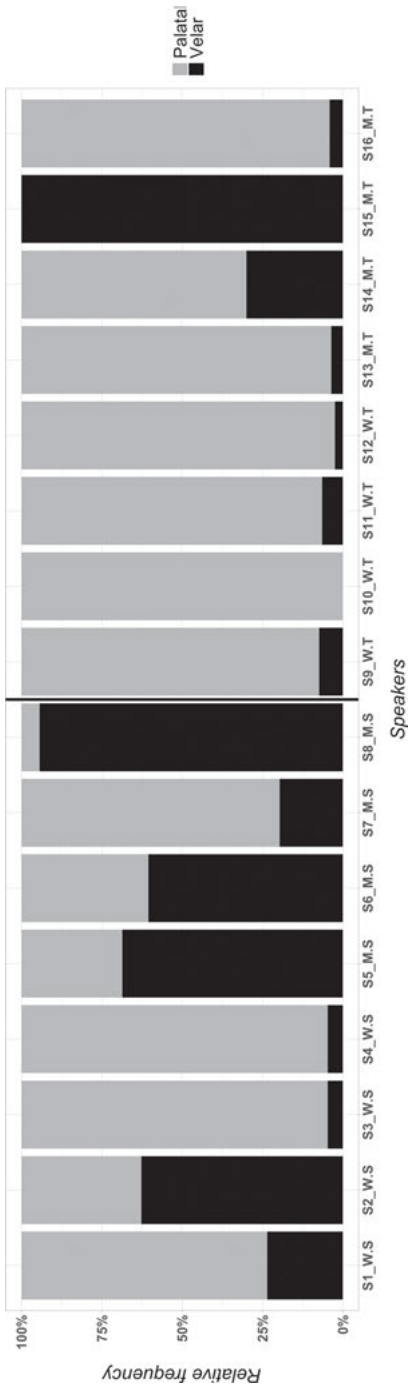


Figure 5: Distribution of variants of (ç) according to the individual speakers in Model 3 (n = 866).

Decisive are those speakers who behave contrary to the group trend. Particularly outstanding are speakers S3, S4 and S15. Speakers S3 and S4 are secondary-educated but almost exclusively use the palatal fricative [ç], whereas speaker S15 is tertiary-educated but uses the velar fricative [x] only (see Figure 5).

Regarding the language-internal constraints, we again operationalised two factors: the position of the variant of (ç) within the word (word-medial vs. word-final) and its preceding sound (closed vowels vs. close-mid vowels vs. open-mid vowels vs. obstruents vs. sonorants). Whereas the preceding sound has a significant effect on (ç) variation, the position within the word does not (see Table 11).

Table 11: Distribution of the variants of (ç) according to their position within the word and their preceding sound in Model 3 (n = 866).

16 speakers	Variant	Model 3 integrated data	
		n	% of total
word-medial	palatal [ç]	400	72.1 %
	velar [x]	155	27.9 %
word-final	palatal [ç]	229	73.6 %
	velar [x]	82	26.4 %
Preceding sound	Variant	n	% of total
	close vowels	palatal [ç]	497
	velar [x]	148	22.9 %
close-mid vowels	palatal [ç]	24	49.0 %
	velar [x]	25	51.0 %
open-mid vowels	palatal [ç]	45	60.8 %
	velar [x]	29	39.2 %
obstruents	palatal [ç]	32	82.1 %
	velar [x]	7	17.9 %
sonorants	palatal [ç]	31	52.5 %
	velar [x]	28	47.5 %

For word-medial (72.1 %) as well as for word-final (73.6 %) position, the speakers clearly and equally prefer the palatal fricative [ç]. The situation is different for the preceding sound. It is striking that the speakers use a rather high percentage of velar fricatives after close-mid vowels (51 %), such as /ø/ in *höchstens* ‘at most’, sonorants (47.5 %), such as /l/ in *Kuhmilch* ‘milk’, and open-mid vowels (39.2 %), such as /ɛ/ in *Fläche* ‘area’. However, except after close-mid vowels, the speakers

favour the use of the palatal fricative [ç]. This preference for the palatal fricative [ç] applies in particular to the sound class of preceding closed vowels (77.1 %), such as /i/ in *nicht* ‘not’ or /y/ in *Bücher* ‘books’, and the class of preceding obstruents (82.1 %), such as /s/ in *bisschen* ‘a little’ and /t/ in *Mädchen* ‘girl’.

When looking at the statistically significant contrasts between the categories (see Table 12), two things need to be mentioned. Firstly, the height of the vowels determines variation between [ç] and [x]. The more open the preceding vowel, the more likely velar variants are to be used, which is not surprising when recalling that the variable is complementarily distributed (see Section 2.2.1). The threshold, however, is rather high, since only close vowels clearly trigger palatal variants. Variants preceded by close-mid and open-mid vowels, which according to the standard norm should also be realised as palatal variants, are much more variable. Somewhat surprising, even though not statistically significant, is the fact that participants used velar variants more frequently after close-mid vowels than after open-mid vowels. In order to fully interpret this counter-intuitive finding it might be necessary, in addition, to take account of the degree of rounding of the preceding vowels.

Secondly, with regard to the consonants, there is a clear preference for velar variants after sonorants. When preceded by obstruents, there is a clear tendency to use the palatal variant. Here, however, it needs to be mentioned that the fricative appears most frequently in the diminutive suffix *-chen* in syllable initial position.⁶

Table 12: Significant contrasts between the preceding sounds for Model 3 (n = 866).

Significant contrasts	
close vowels vs. close-mid vowels	$\beta = -1.252, z = -2.801, p < 0.05$
close vowels vs. open-mid vowels	$\beta = -1.799, z = -4.746, p < 0.0001$
close vowels vs. sonorants	$\beta = -1.476, z = -3.819, p < 0.0005$
close-mid vowels vs. obstruents	$\beta = 1.78, z = 2.653, p < 0.05$
open-mid vowels vs. obstruents	$\beta = 2.33, z = 3.603, p < 0.01$
obstruent vs. sonorants	$\beta = -2.006, z = -3.113, p < 0.01$

⁶ The diminutive suffix *-chen* is associated with (northern) Federal German Standard German. In Swiss Standard German, *-li* seems to be more common. Thus, in the translation task, we got a high number of forms with *-li*, e.g., *Mädli* vs. *Mädchen* ‘girl’, *Bettli* vs. *Bettchen* ‘small bed’, and *Häusli* vs. *Häuschen* ‘small house’. For the distribution of variants of the variable (*-chen*), see for example the map for *Mädchen* (Pl., ‘girls’) of the Atlas zur deutschen Alltagssprache (Ada, ‘Atlas of Colloquial German’) (Elspeß and Möller 2003 ff.).

As mentioned above, we separately analysed realisations of (ç) for all 422 tokens of the pronoun *ich* 'I'. This item appeared most frequently in the informal conversation. As for the other lexemes in Models 1 to 3, the use of the palatal fricative [ç] clearly predominates (see Table 13).

Table 13: Distribution of the variants of (ç) in the pronoun *ich* 'I' (n = 422) according to level of education and gender.

16 speakers	Variant	Model <i>ich</i> 'I' integrated data	
Level of education		n	% of total
secondary	palatal [ç]	133	73.9 %
	velar [x]	47	26.1 %
tertiary	palatal [ç]	214	88.4 %
	velar [x]	28	11.6 %
Gender	Variant	n	% of total
male	palatal [ç]	107	62.9 %
	velar [x]	63	37.1 %
female	palatal [ç]	240	95.2 %
	velar [x]	12	4.8 %

Similar to the results presented above, fixed effects models reveal significant results for the variable gender ($\beta = -2.36$, $z = -6.806$, $p < 0.0001$) as well as for the interaction between gender and educational level: the analysis reveals a significant effect between secondary-educated females and tertiary-educated females, with the latter using significant more palatal variants than the former ($\beta = 3.43$, $z = 3.254$, $p < 0.01$). For male speakers, no such effect was to be found. Furthermore, adding speaker as a random effect results in gender being the only robust predictor ($\beta = -4.03$, $z = -2.071$, $p < 0.05$), which is to be explained by high inter-individual differences.

Taken together, the group-level data show significant differences for level of education, gender and preceding sound, as long as we exclude individual speakers as random effects. If we include individual speakers as random effects, only gender and preceding sound remain as stable predictors for the realisation of (ç) in our models. This finding points towards large inter-individual differences. By and large, the results for the pronoun *ich* 'I' reflect the findings for Models 1 to 3.

4.2.2 Intra-speaker variation

As in the case of the realisation of (k), intra-speaker variation according to the degree of formality of the language production tasks was assumed to play a role in respect of the realisation of (ç). The speakers were supposed to use more velar fricatives [x] in the comprehension-oriented informal conversations than in the norm-oriented reading and translation tasks. We again find a result that does not meet our expectations with regard to the underlying attention-to-speech hypotheses (see Section 3). Surprisingly, we find the lowest proportion of velar fricatives [x] in the informal conversations (23.1 %). The speakers used most velar fricatives [x] when reading the newspaper text (33.1 %). However, we have to bear in mind that these differences are not statistically significant (see Table 14).

Table 14: Distribution of the variants of (ç) according to language production task in Model 3 (n = 866).

16 speakers Language production task	Variant	Model 3 integrated data (n.s.)	
		n	% of total
informal conversation	palatal [ç]	310	76.9 %
	velar [x]	93	23.1 %
reading a newspaper text	palatal [ç]	144	66.4 %
	velar [x]	73	33.6 %
reading a composed text	palatal [ç]	93	68.9 %
	velar [x]	42	31.1 %
translation task	palatal [ç]	82	73.9 %
	velar [x]	29	26.1 %

The results given in the above table for Model 3 are similar to those for the realisation of (ç) in the pronoun *ich* 'I' (see Table 15). Again, the speakers used most velar fricatives [x] when reading the newspaper text (28.6 %) and fewest in the informal conversation (15.9 %). In between, we find the translation task with 21.6 % velar fricatives [x]. Note that the pronoun does not appear in the composed text.

In sum, the group-level data show no significant intra-speaker variation according to the four different language production tasks. This does, however, not mean that the speakers show uniform patterns of variation according to each task.

Table 15: Distribution of the variants of (ç) in the pronoun *ich* 'I' (n = 422) according to language production task.

16 speakers	Variant	Model <i>ich</i> 'I' integrated data (n.s.)	
		n	% of total
informal conversation	palatal [ç]	269	84.1 %
	velar [x]	51	15.9 %
reading a newspaper text	palatal [ç]	20	71.4 %
	velar [x]	8	28.6 %
translation task	palatal [ç]	58	78.4 %
	velar [x]	16	21.6 %

4.3 Intra-individual variation and inter-individual differences

This section focuses on intra-individual variation and inter-individual differences. In Section 1, we defined intra-individual variation as variability of individual speakers in the same situation or the same style of speech. This is why we concentrate on the uncontrolled data of the informal conversations in this context. To place so much attention on intra-individual variation seems to be particularly important here for two reasons: The first reason is that our models cannot explain the entire variance in the data. Even if the fixed and random effects clarify 59.2 % of the variance for (k) and 70 % of the variance for (ç), further variables and explanations need to be considered. It is of great importance that the supposed degree of formality of the different language production tasks was not found to be a significant predictor either for (k) (see Section 4.1.2) nor for (ç) (see Section 4.2.2). Thus, we cannot explain the variation in terms of intra-speaker variation, i.e. systematic individual variability in the context of different styles and/or discourses.

The second reason to focus on intra-individual variation is that most speakers do not correspond to the average values at the group level, even when structuring the groups according to the sociodemographic variables of level of education and gender. Variationist sociolinguistic research has an ambivalent relationship with such empirical findings because they challenge the homogeneity assumption, that “groups of speakers who are sociologically similar tend to be linguistically similar” (Boyd and Fraurud 2010: 686–687). That the homogeneity assumption is a substantial precondition for the successful paradigm of quantitative sociolinguistics is related to the fact that the speech community was and still is the central anchor point in variationist sociolinguistic research (Labov 2001: 33–34; Labov 2006: 380).

Unfortunately, the language use of the individual has mostly only been taken as a proxy for group-level variation. According to Meyerhoff (2006: 37) variationists mostly “consider intraspeaker variation to be evidence of inherent variability in a communal grammar”. Or, as Labov (2001: 34) tellingly claimed, the individual does not exist as a linguistic object”. Accordingly, in traditional variationist sociolinguistics, varieties like dialects were mostly seen as coherent, categorical, and rather homogeneous entities: “While some scholars have set out explicitly to investigate the co-occurrence of variables in a speech community (Guy 2013), more often variationists view the coherence of varieties as axiomatic” (Becker 2016: 87).

The axiom of coherent varieties, in which variables should systematically co-vary (cf. Guy and Hinskens 2016: 1), also presupposes the linguistic coherence of their speakers, who should behave as similarly as possible with regard to the use of a certain variety, speech style, etc. This overlooks the fact of a large residue of variation between and within individuals which cannot be characterised in any clear way by dividing speakers into further sociodemographic subgroups (cf. Milroy 1987: 131; Macha 1991). Thus, particularly variationist research should face the problem that neither a variety (dialect, style, etc.) nor an idiolect is a strictly homogeneous system (for a critical review of the homogeneity assumption see e.g. Macha 1991; Boyd and Fraurud 2010; Becker 2016; Bülow et al. 2019), i.e. not all aspects of a variety’s variability can be accounted for by linguistic and by group-social influences.⁷ Unfortunately, “many sociolinguists continue to work as if individual variation or intragroup variation was of secondary importance (cf. Rampton 1997: 330; Wolfram and Thomas 2002: 160–165; Wolfram 2007)” as Boyd and Fraurud (2010: 687) point out. Thus, “little attention was paid to non-systematic speaker-inherent variation that might occur independently of the context or communication partner, i.e. in the same style of speech in similar situations” (Bülow and Pfenninger 2021: 4). Accordingly, most variationist studies ignore the fact that speakers often vary in the same situation while speaking to the same addressee. In what follows, we argue that intra-individual variation can be meaningful for variationists. It is more than just noise in the data. Studies on this intra-individual variation are needed to better understand the actuation and diffusion of (new) variants within the speech of individuals.

In this section, we will elaborate more thoroughly on intra-individual variation by regarding the individual speakers as single case studies. To do so, we try to provide in-depth analyses by taking into account findings from the sociodemographic questionnaire to better understand the linguistic behaviour of each

⁷ Third wave sociolinguists, who operate very much at the level of the individual, have been trying to demonstrate that individuals deploy variability to display different personas and stances.

speaker. We concentrate on those questions in the questionnaire that try to capture the relationship between the use of standard and the professional life of the speakers (see Section 2). Table 16 provides interesting insights. Speakers are ordered according to their self-assessment of how regularly they need to speak Standard German in their professional life (*Sprechen Sie in Ihrem Beruf mit anderen Menschen regelmässig Hochdeutsch?*). We shaded (dark grey = values from 1–3, grey = value 4 and light grey = values from 5–7) the 7-point Likert scale answers in Table 16 in order to graphically support potential relationships.

Table 16 reveals that the self-assessments on the question of how regularly (1 = never / 7 = very often) the standard is used in their professional life is largely in accordance with their self-assessments on the questions of how important (1 = unimportant / 7 = very important) the standard is in their professional life and how highly they rate their own competence in Standard German (1 = very badly / 7 = very well).

Those speakers who answered that they never (= 1) or rather rarely (= 2 and 3) need to use Standard German in their professional life also state that the standard tends to be unimportant (= 1) or less important (= 2 and 3) in their job. Also, their self-assessment of their own standard competence tends to be lower. On average, these speakers also use more tokens of (k) affrication and (ç) velarisation than those speakers who state that the standard is very important (= 7) or quite important (= 6 and 5) for their professional life and that they very frequently (= 7) or quite frequently speak Standard German at work.

Table 16 also illustrates that tertiary-educated people rate their standard competency with a mean (M) of 5.5 slightly higher than most secondary-educated people (M = 4.5). Furthermore, those with tertiary education also estimate with a mean of 4.4 that they tend to use the standard more often at work than those with secondary education (M = 3.3). Additionally, the tertiary-educated speakers assess with a mean of 3.8 that Standard German is more important in their job than the secondary-educated speakers (M = 3.1). These results demonstrate, as assumed by Werlen (2004), a relationship between level of education, profession and the need for competence in Standard German (see Section 5). The results are also reminiscent of the effects of so-called ‘marché linguistique’ demonstrated in variationist research on Montreal French by Sankoff and Laberge (1978). They showed that the use of the verb *avoir* (‘to have’) as the auxiliary used in the perfect tense of the set of verbs which in standard French take *être* ‘to be’ (such as *aller* ‘to go’, *tomber* ‘to fall’) was found most amongst those who were felt to need Standard French less in their workplaces, and least amongst those for whom it was very important. However, this pattern in our data is only a tendency. We cannot ignore the exceptions.

Table 16: Percentage of [kx] and [x] in the informal conversation in relation to the profession and further information from the sociodemographic questionnaire.

Speaker	Profession	Use of standard in professional life ^a	Importance of standard in professional life ^b	Self-assessment of standard competency ^c	k-affirmation	ξ-relativisation
S11_W.T	Radio editor	1	1	4	0 %	3 %
S2_W.S	Security guard	2	1	3	62 %	32 %
S7_M.S	Metal worker	2	2	4	17 %	19 %
S12_W.T	Special needs teacher	2	2	5	25 %	0 %
S14_M.T	Property manager	2	3	4	43 %	36 %
S6_M.S	Metalwork project manager	3	3	7	2 %	63 %
S5_M.S	Technical sales employee	3	4	4	68 %	57 %
S8_M.S	Metal worker	3	4	5	23 %	100 %
S9_W.T	Student, security company worker	3	5	5	5 %	5 %
S1_W.S	Medical practice assistant/kinesio- logist	4	2	3	0 %	18 %
S4_W.S	Healthcare specialist	4	4	5	33 %	20 %
S13_M.T	Product manager	5	6	6	9 %	8 %
S3_W.S	Flight attendant	5	5	5	24 %	0 %
S16_M.T	Project manager	6	7	5	0 %	11 %
S10_W.T	High school teacher	7	5	5	0 %	0 %
S15_M.T	Security specialist	7	1	3	3 %	100 %

^a Do you regularly speak 'High' German (= Standard German) in your professional life with other people? (1 = never / 7 = very often)

^b How important is 'High' German for you in your professional life? (1 = unimportant / 7 = very important)

^c Please estimate how good you speak 'High' German? (1 = very badly / 7 = very well)

First of all, we would like to discuss the variation patterns of speakers S2 and S5. Regarding level of education and the use of standard in professional life, their language use is certainly consistent with what we have found at the group level (see Sections 4.1.1 and 4.2.1). Their language use stands out within this sample of speakers to the degree that they apply a high percentage of both affricates for (k) and velarisations for (ç) in their informal conversation (see Table 16). This may be due to their language attitudes, which can be illustrated by three questions from the sociodemographic questionnaire. For example, speaker S5 stated that it is not so important for him to be careful when it comes to speaking German (i.e. Standard German) (question: *Für wie wichtig halten Sie es, dass man sich beim Sprechen der deutschen Sprache sorgfältig ausdrückt?* ‘How important do you think it is that you express yourself carefully when speaking German?’). Similarly, speaker S2 has indicated that it is not so important for her that TV presenters use a Standard German that is devoid of dialectal features (Question: *Finden Sie es wichtig, dass Moderatorinnen und Moderatoren im Fernsehen ein gepflegtes, von Dialektmerkmalen möglichst freies Hochdeutsch reden?* ‘Do you think it is important that TV presenters speak a well-groomed High German that contains as few dialectal features as possible?’). The same speaker also stands out for being one of the few who stated that Standard German was more like a foreign language for her rather than a “second mother tongue”.

Another speaker who uses a high percentage of both affricates for (k) (43 %) and velarisations for (ç) (36 %) is S14. This case is particularly noteworthy, since S14 is a tertiary-educated speaker. The rather extensive use of affricates for (k) and velarisations for (ç) may be attributed to the fact that Standard German is not particularly important or relevant in his professional life. This, however, also applies to other tertiary-educated speakers like S11, S12, and S9 who clearly use fewer affricated and velarised variants. From the collected data, no conclusive explanation can be found as to why S14’s use of the two variables (k) and (ç) differs significantly from that of the other tertiary-educated speakers.

A further exceptional case is speaker S6 who is secondary-educated and rather rarely uses Standard German in his professional life. Contrary to what these factors would suggest at the group level (i.e., higher percentages of (k) affrication and (ç) velarisation), speaker S6 uses a relatively low degree of (k) affrication (2 %). In this particular case, level of education and the use of the standard in professional life do not explain the speakers’ linguistic behaviour. It is striking, however, that this speaker was the only one who rated his standard competence as very good (= 7). Regarding the velarisation of (ç) (63 %), however, level of education and the use of the standard in professional life would conform to what is to be expected from the results at the group level. Further speakers for which the factors that are relevant at the group level explain the variation for one variable

but not for the other are S15, S8, and S12. The variation patterns for these speakers indicate that a clear hierarchy between the two variants [kx] and [x] is not to be expected. In other words, there is no correlation between the appearance of [kx] and [x]. Thus, there is no clear-cut implicational relationship between the degree of affrication of (k) and the degree of velarisation of (ç) in our data set. Figure 6 illustrates that we might assume such a hierarchical relation in the variation patterns of the speakers S10, S11, S9, S13, S7, S4, S14, S2, and S5 but definitely not for the speakers, S6, S15, and S8.

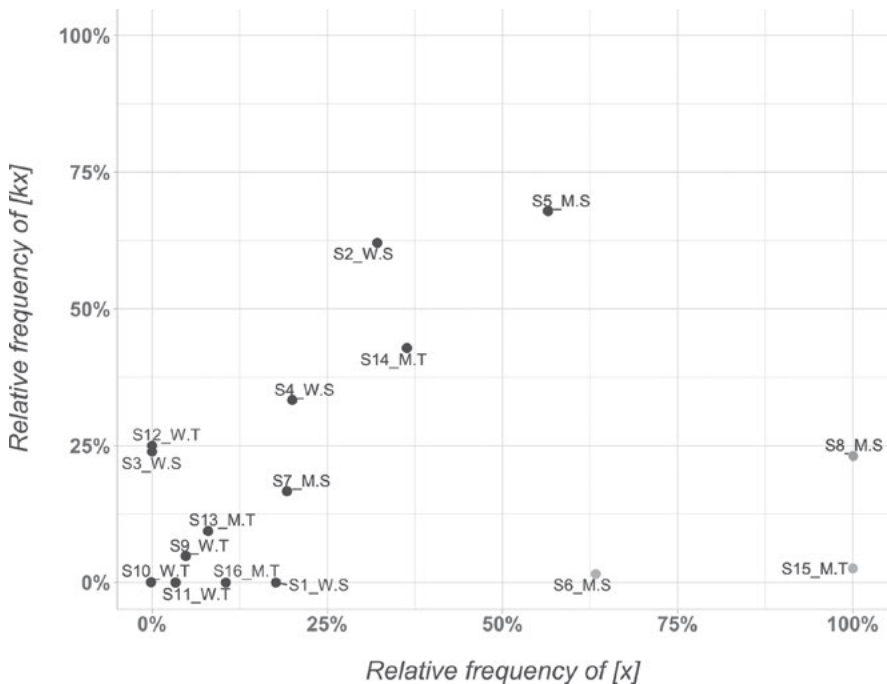


Figure 6: Relative use of [kx] and [x] of each speaker in the informal conversation.

Furthermore, the high degree of intra-individual variation and the individual differences in the data strongly indicate that spoken Swiss Standard German is no homogeneous system or variety. We will come back to this point in Section 5.

5 Discussion

In Section 4, we identified several sociolinguistic factors that shape variation in spoken Swiss Standard German. The most important of these are gender, level of education, and profession. Level of education and profession cannot of course be considered independently of one another (see Section 4.3). However, these factors do not affect the variables (k) and (ç) equally. For (k), level of education explains most of the variation whereas the fixed effects, such as gender, communicative orientation, and language internal factors such as position within the word and the immediate phonetic-phonological environment, do not play a role. The situation is different for (ç), where gender accounts for the main effect. Level of education and language internal factors such as the preceding sound only marginally affect the variation. Again, communicative orientation and position within the word do not show any effects. Regardless of these differences, Model 3 – which only slightly differs with regard to the language internal factors for (k) and (ç) – explains 59.2 % of the variance in the data for (k) and as much as 70 % for (ç). Despite the fact that these are fairly good values, they also show that Model 3 only partially explains the variation in spoken Swiss Standard German. We should also bear in mind that individual speakers and lemmas have been integrated as random effects. These random effects already indicate that we have a considerable degree of intra-individual variation and inter-individual differences in the data. This is corroborated by our individual-centred analysis in Section 4.3. The speaker-based case studies show that group-level results cannot be easily generalised to individual language usage and *vice versa*.

Given the focus of the present volume, the degree of intra-individual variation and individual differences, reported in Section 4.3, illustrates a rather large residue of variation which cannot be characterised in any clear way by dividing speakers into further sociodemographic subgroups (see also Milroy 1987: 131; Macha 1991). We might explain more of the variation when we group individuals around subjective and attitudinal data, but even if we do so, we are not able to fully explain the variation on the basis of group-derived estimates. This means that we cannot solve the problem of explaining the residue of variation by focussing on smaller or even the smallest subgroups. Furthermore, group-based analyses alone might mask theoretically and sociolinguistically meaningful intra-individual differences. Thus, we claim to also focus on the individual level in its own right at least to validate the group averages. The residue of variance in the data should not simply be attributed to one or two outliers. However, the findings of this study at the individual level call into question the generalisability of the factors found in Section 4.1 and 4.2.

Instead, analytic frameworks capable of seamlessly scaling from individual data to large-group data should be preferred (cf. Kurz et al. 2019). Therefore, variationist sociolinguists need to collect and analyse rich contextual data. Hiver and Al-Hoorie (2020), for example, propose several helpful techniques that allow for controlling both intra- and inter-individual variation from a Complexity Theory perspective. We argue that at least partially adopting this dynamic perspective can help us answer fundamental variationist research questions (cf. Bülow et al. 2018; de Bot and Bülow 2020). Note that the application of an individual-centred approach means not rejecting but rather complementing the methods and approaches developed in recent decades (see Bülow and Pfenninger 2021). Even if we took into account the individual speaker as a random effect in our calculations – and this technique at least indicates that intra-individual variation matters – we are fully aware that we conducted a rather traditional variationist study, also giving much attention to inter-individual variation.

Regarding the variables that explain large parts of the inter-individual variation in the data, we found, for example, gender to be particularly important for the variation in (ç). Male speakers use on average significantly more velar fricatives [x] than female speakers, who prefer to use palatal fricatives [ç] (see Section 4.2.1). This is particularly relevant for informal conversations. Given that the palatal fricative is an undisputed feature of all German standard varieties (e.g., Federal German and Austrian Standard German), whereas the velar fricative, in certain phonetic-phonological contexts (cf. see Section 2.3), only occurs in spoken Swiss Standard German (and partly in Austria), the use of [x] has the potential to index Swissness or a particular Swiss oralisation norm of Standard German (beside other oralisation norms). Remember that Swiss-Germans have an ambivalent relationship to their standard variety: they use it proudly but at the same time often consider Federal German Standard German to be “better” (cf. Studler 2019; Schneider submitted). Against the background of findings and insights from a large body of sociolinguistic literature, it is no surprise that women show a greater tendency to deploy higher-valued and more prestigious oralisation norms (here Federal German Standard German) than men (see, among others, Trudgill 1972, 1974; Romaine 2003: 101; Cheshire 2004; Mattheier 2009). However, the Swiss German situation is not that simple. Previous studies of Swiss Standard German did not reveal any gender differences (cf. Hove 2002: 141; Christen et al. 2010). This is reflected in our finding for (k), where gender does not play a role in accounting for the variation (see also Büchler et al. accepted). Women and men equally apply the plosive [k^h] and the affricate [kx]. The latter is supposed to index the same degree of Swissness as the velar fricative [x]. Thus, this study shows no clear result for the sociolinguistic variable gender. Whether this study has uncov-

ered ongoing change regarding attitudes towards spoken Swiss Standard German needs further apparent- or real-time evidence.

This study, however, shows no clear implicational relationship between the particular Swiss German standard variants [kx] and [x] as supposed by Christen et al. (2010). Figure 7 illustrates that there is no positive correlation whereby the more speakers use [kx] the more they also use [x].

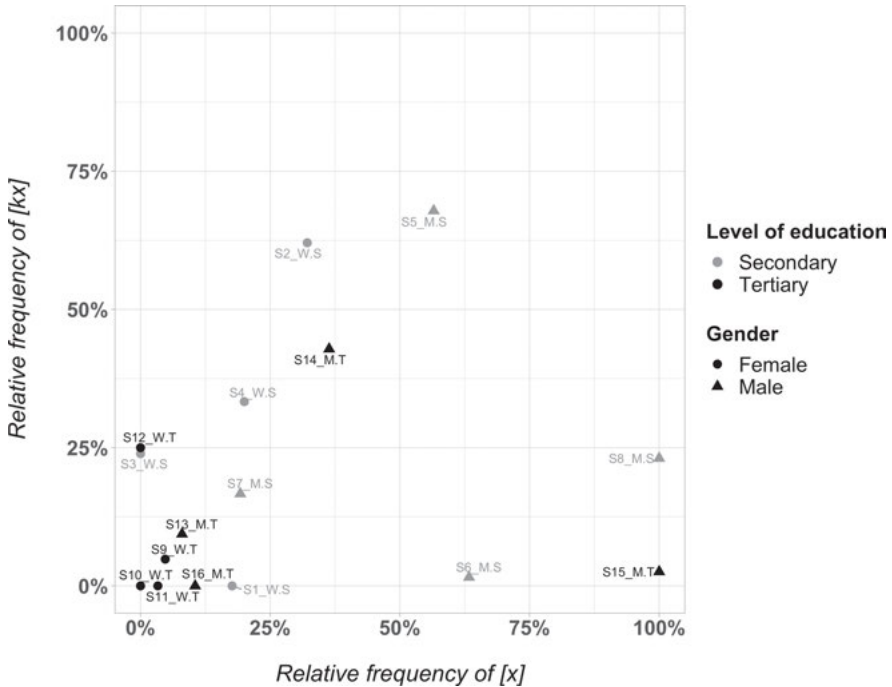


Figure 7: Relative use of [kx] and [x] of each speaker according to Model 3.

Figure 7 also shows that level of education needs to be considered to explain a great deal of variation. That level of education is particularly important might be due to the domains in which spoken Swiss Standard is regularly used (see Section 2). Census data show that 45.1 % of Swiss-Germans regularly use the standard at work (question: *Hochdeutsch als Umgangssprache am Arbeitsplatz* ‘High German as an ambient language at work’) (cf. Werlen 2004: 15). It is particularly interesting in which professions the standard plays a major role according to the census data – these include the liberal professions (*freie Berufe*) (72.3 %), academic professions and higher management (*akademischen Berufe und höheren Kader*) (73.3 %), top management level (*oberste Managementebene*)

(60.4 %), and intermediate professions (*intermediäre Berufe*) (56 %). Whereas Standard German plays a minor role for self-employed persons (*andere Selbstständige*) (35.8 %), e.g. farmers and craftsmen, unskilled workers and employees (*ungelernte Arbeiter und Angestellte*) (33.9%), and qualified manual professions (*qualifizierte manuelle Berufe*) (23.4 %). These numbers indicate a sociolinguistically motivated distribution: the higher the educational level of the profession, the more standard language the speakers use (cf. Werlen 2004: 16). Hence, the higher educational level of the speakers, the more likely they are to use spoken Standard German in order to do their work. Thus, in contrast to the situation in Germany and Austria, level of education is not relevant for how frequently or infrequently the Swiss-German speakers use their dialect (see e.g. Mattheier 2009: 242), but for how frequently or infrequently they use Standard German. The relation between profession, educational background, and use of Standard German is clearly indicated by the results of this study (see Sections 4.1.1, 4.2.1, and 4.3). However, particularly when it comes to understanding the influence of educational institutions like primary schools for the use of Standard German, broad and meaningful studies are still lacking.

Such studies could perhaps help to better understand the role of communicative orientation. In contrast to Hove (2002) and Christen et al. (2010), the present study could not find a significant difference between informal conversation (comprehension-oriented and low attention to speech) and the reading and translation tasks (norm oriented and high attention to speech). We can only speculate about the differences between our research and the studies of Hove (2002) and Christen et al. (2010). Christen et al. (2010: 223), for example, refer to the relationship between attention to speech and routinised use of the standard. They argue that less experienced speakers of Standard German need to pay more attention to speech than more experienced speakers in order to suppress features that are frequently used in their dialect. At this point, however, it must be pointed out again that using Standard German for Swiss-Germans *always* requires a high level of attention to speech. Conversations among Swiss-Germans from the same region are extremely rarely conducted in Standard German (e.g., when a third person is present who does not understand the dialect). Accordingly, a non-Swiss German investigator might have gathered rather different data, which might have been in accordance with those of Hove (2002) and Christen et al. (2010).

In sum, many factors unite to define the most appropriate styles of speaking and reading. This also accounts for standard languages and idiolects. This study has further shown that variation is variable itself. Even if we are aware that “[v]ariation is an essential element of all dynamically developing systems” (de Bot and Bülow 2020: 179), from a sociolinguistic perspective, a still urgent and

unsolved question is, however, how variation and change moves from the individual level to the population level and *vice versa* (cf. Tagliamonte 2012: 247).

6 Conclusion

The aim of this contribution was to sociolinguistically examine the variability of (k) and (ç) within the spoken Swiss Standard German of the city of Biel (Canton of Berne). Thus, the speech of 16 speakers, aged between 19 and 40, was gathered in sociolinguistic interviews including an informal conversation (comprehension-oriented) and several reading and translation tasks (norm-oriented). The focus of this study was on sociolinguistic constraints such as level of education, gender, communicative orientation and on language internal factors. It turns out that level of education and gender explain most of the variation, even if these variables do not affect (k) and (ç) equally.

For (ç), gender, combined with level of education and the preceding sound, explains most of the variation: We can conclude that male speakers (who are secondary-educated) use the velar fricative [x] versus the palatal fricative [ç] significantly more often on average than female speakers (who are tertiary-educated). The speakers tend to particularly favour velar fricatives after close-mid vowels compared to other phonetic-phonological contexts. For (k), level of education is the most relevant social constraint. Especially in this context, level of education cannot be considered independently from profession. The finding that tertiary-educated speakers use significantly less affrication of (k) than secondary-educated speakers was related to the more frequent use of spoken Standard German by speakers with a tertiary educational background. This in turn indicates that it is not the educational level as such that is decisive, but what speakers with a certain educational background do later on, and in particular to what extent they use spoken Standard German in their professional lives.

Furthermore, this chapter addressed theoretical and methodological questions regarding systematic and non-systematic variation within individuals. First of all, no systematic stylistic variation was found regarding the communicative orientation and the underlying attention to speech of the different language production tasks. Instead, this study reveals intra-individual variation which cannot be characterised in any clear way by dividing speakers into further sociodemographic subgroups even if we take into account subjective and attitudinal data. Thus, the findings of this study at the individual level call into question the generalisability of the factors derived from group averages. Hence, variationist soci-

olinguists should be more careful with their inferences based on group-derived estimates alone.

Follow-up research needs to consider additional variables and focus on the individual level. The models we used cannot fully explain the variance in the data. Accordingly, it should be noted once again that the variability of (k) and (ç) is not fully causally linked to speakers' level of education or gender. Rather, sociobiographic influences and attitudes have to be taken into account in order to further explain inter-individual differences. In sum, variation in spoken Swiss Standard German is strongly related to level of education, profession and the routinised use of the standard. However, it must first be shown on the basis of further studies whether the findings for our speakers from Biel can also be transferred to other age groups and locations in German-speaking Switzerland.

References

- AADG = Kleiner, Stefan (2011 ff.) *Atlas zur Aussprache des deutschen Gebrauchsstandards*. Unter Mitarbeit von Ralf Knöbl. <http://prowiki.ids-mannheim.de/bin/view/AADG/> (accessed 20 April 2020).
- Auer, Peter. 2005. Europe's sociolinguistic unity, or: A typology of European dialect/standard constellation. In Nicole Delbecq, Johan van der Auwera & Dirk Geertaerts (eds.), *Perspectives on Variation. Sociolinguistic, Historical, Comparative*, 7–42. Berlin & New York: Mouton de Gruyter.
- Auer, Peter. 2011. Dialect vs. standard: A typology of scenarios in Europe. In Bernd Kortmann & Johan van der Auwera (eds.), *The Languages and Linguistics of Europe*, 485–500. Berlin & New York: Mouton de Gruyter.
- Bates, Douglas, Martin Mächler, Ben Bolker & Steven Walker. 2018. *lme4* (Version 1.1–17) [Software]. <https://cran.r-project.org/web/packages/lme4/index.html>.
- Becker, Kara. 2016. Linking community coherence, individual coherence, and bricolage: The co-occurrence of (r), raised BOUGHT and raised BAD in New York City English. *Lingua* 172/173. 87–99.
- Bell, Allan. 1984. Language style as audience design. *Language in Society* 13(2). 145–204.
- Boyd, Sally & Kari Fraurud. 2010. Challenging the homogeneity assumption in language variation analysis: Findings from a study of multilingual urban spaces. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An International Handbook on Linguistic Variation. Volume 1: Theories and Methods*, 686–706. Berlin: de Gruyter.
- Büchler, Andrin, Lars Bülow & Nicolai Rawyler. accepted. Welchen Einfluss nimmt der Bildungsgrad auf die *k*-Affrizierung im Schweizer Standard? *Zeitschrift für Dialektologie und Linguistik*.
- Bülow, Lars, Kees de Bot & Nanna Hilton. 2018. Zum Nutzen der *Complex Dynamic Systems Theory* (CDST) für die Erforschung von Sprachvariation und Sprachwandel. In Helen Christen, Peter Gilles & Christoph Purschke (eds.), *Räume, Grenzen, Übergänge. Akten des*

5. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD), 45–69. Stuttgart: Steiner.
- Bülow, Lars, Hannes Scheutz & Dominik Wallner. 2019. Variation and change of plural verbs in Salzburg's base dialects. In Antje Dammel & Oliver Schallert (eds.), *Morphological variation. Theoretical and empirical perspectives*, 95–134. Amsterdam: Benjamins.
- Bülow, Lars & Simone Pfenninger. 2021. Introduction. Reconciling approaches to intra-individual variation in psycholinguistics and variationist sociolinguistics. *Linguistics Vanguard* 7(s2). 1–10.
- Cheshire, Jenny. 2004. Sex and gender in variationist research. In Jack K. Chambers, Peter Trudgill & Natalie Schilling-Estes (eds.), *The handbook of language variation and change*, 423–443. Oxford, Blackwell.
- Christen, Helen. 2008. *Gesprochene Standardsprache im Deutschschweizer Alltag*. Schlussbericht des Nationalen Forschungsprogramms (NFP 56).
- Christen, Helen, Manuela Guntern, Ingrid Hove & Marina Petkova. 2010. *Hochdeutsch in aller Munde: Eine empirische Untersuchung zur gesprochenen Standardsprache in der Deutschschweiz*. Stuttgart: Steiner.
- Christen, Helen & Regula Schmidlin. 2019. Die Schweiz. Dialektvielfalt in mehrsprachigem Umfeld. In Rahel Beyer & Albrecht Plewnia (eds.), *Handbuch des Deutschen in West- und Mitteleuropa. Sprachminderheiten und Mehrsprachigkeitskonstellationen*, 193–244. Tübingen: Narr.
- Coupland, Nikolaus. 2001. Language, situation, and the relational self: Theorizing dialect-style in sociolinguistics. In Penelope Eckert & John R. Rickford (eds.), *Style and sociolinguistic variation*, 185–210. Cambridge: Cambridge University Press.
- De Bot, Kees & Lars Bülow. 2020. Cognitive Factors of Language Contact. In Evangelia Adamou & Yaron Matras (eds.), *The Routledge Handbook of Language Contact*, 168–184. London: Routledge.
- Dürscheid, Christa & Jan Georg Schneider. 2019. *Standardsprache und Variation*. Tübingen: Narr.
- Elspaß, Stephan & Robert Möller (2003 ff.): *Atlas der deutschen Alltagssprache (AdA)*. <http://www.atlas-alltagssprache.de/> (accessed 27 May 2020).
- Ender, Andrea & Irmtraud Kaiser. 2009. Zum Stellenwert von Dialekt und Standard im österreichischen und Schweizer Alltag – Ergebnisse einer Umfrage. *Zeitschrift für Germanistische Linguistik* 37(2). 266–295.
- Friedli, Matthias. 2005. Si isch grösser weder ig! Zum Komparativanschluss im Schweizerdeutschen. *Linguistik Online* 24(3). 79–113. <https://bop.unibe.ch/linguistik-online/article/view/638/1105> (accessed 27 May 2020).
- Guntern, Manuela. 2011. Erkennen von Dialekten anhand von gesprochenem Schweizerhochdeutsch. *Zeitschrift für Dialektologie und Linguistik* 78(2). 155–187.
- Guntern, Manuela. 2012. Dialekt und gesprochenes Standardsprache: Wie Laien gesprochenes Schweizerhochdeutsch beurteilen. *Sociolinguistica* 26(1). 102–119.
- Guy, Gregory R. & Franz Hinskens. 2016. Linguistic coherence: Systems, repertoires and speech communities. *Lingua* 172–173. 1–9.
- Hernández-Campoy, Juan M. 2016. *Sociolinguistic styles*. Chichester: Wiley-Blackwell.
- Herrgen, Joachim. 2015. Entnationalisierung des Standards. Eine perzeptionslinguistische Untersuchung zur deutschen Standardsprache in Deutschland, Österreich und der Schweiz. In Alexandra N. Lenz & Manfred M. Glauninger (eds.), *Standarddeutsch im 21. Jahrhundert – Theoretische und empirische Ansätze mit einem Fokus auf Österreich*, 139–164. Göttingen: Vienna University Press.

- Hiver, Phil & Ali H. Al-Hoorie. 2020. *Research methods for complexity theory in applied linguistics*. Bristol: Multilingual Matters.
- Hove, Ingrid. 2002. *Die Aussprache der Standardsprache in der deutschen Schweiz*. Tübingen: Niemeyer.
- Hove, Ingrid. 2007. Schweizer Hochdeutsch. Die Aussprache des Deutschen in der Schweiz. Vortrag gehalten auf der Jahrestagung des Schweizerischen Vereins für die deutsche Sprache und der Gesellschaft für deutsche Sprache, Luzern, 22 June.
- Hove, Ingrid. 2008a. Zur Unterscheidung des Schweizerdeutschen und der (schweizerischen) Standardsprache. In Helen Christen & Evelyn Ziegler (eds.), *Sprechen, Schreiben, Hören: Zur Produktion und Perzeption von Dialekt und Standardsprache zu Beginn des 21. Jahrhunderts*, 63–82. Wien: Praesens.
- Hove, Ingrid. 2008b. Gesprochene Standardsprache im Deutschschweizer Alltag. Erste Ergebnisse eines Forschungsprojektes. In Helen Christen & Evelyn Ziegler (eds.), *Sprechen, Schreiben, Hören: Zur Produktion und Perzeption von Dialekt und Standardsprache zu Beginn des 21. Jahrhunderts*, 83–100. Wien: Praesens.
- Hove, Ingrid. 2017. Konfrontiert mit Schweizerdeutsch, Schweizerhochdeutsch und bundesdeutschem Hochdeutsch. *SAL-Bulletin* 165. 5–14.
- Jannedy, Stefanie, Norma Mendoza-Denton & Melanie Weirich. 2019. Social capital and the production and perception of fine phonetic detail in Berlin. In Theresa Heyd, Ferdinand von Mengden & Britta Schneider (eds.), *The sociolinguistic economy of Berlin. Cosmopolitan perspectives on language, diversity and social space*, 125–143. Berlin: de Gruyter.
- Kloss, Heinz. 1976. Abstandsprachen und Ausbausprachen. In Joachim Göschel, Norbert Nail & Gasston van der Elst (eds.), *Zur Theorie des Dialekts*, 301–322. Wiesbaden: Steiner.
- Kolly, Marie-José. 2011. Weshalb hat man (noch) einen Akzent? Eine Untersuchung im Schnittfeld von Akzent und Einstellung bei Schweizer Dialektsprechern. *Linguistik Online* 50(6). 43–77. <https://bop.unibe.ch/linguistik-online/article/view/319/472> (accessed 27 May 2020).
- Kurz, Solomon A., Yelena L. Johnson, Karen Kate Kellum & Kelly G. Wilson. 2019. How can process-based researchers bridge the gap between individuals and groups? Discover the dynamic p-technique. *Journal of Contextual Behavioral Science* 13. 60–65.
- Labov, William. 1966. *The social stratification of English in New York City*. Washington: Center for Applied Linguistics.
- Labov, William. 1972. *Sociolinguistic patterns*. Philadelphia: University of Pennsylvania Press.
- Labov, William. 2001. *Principles of linguistic change. Vol. 2, Social factors*. Malden: Blackwell.
- Labov, William. 2006 [1966]. *The social stratification of English in New York City*. 2nd edn. Cambridge: Cambridge University Press.
- Lüdecke, Daniel, Dominique Makowski, Philip Waggoner & Indrajeet Patil. 2020. *Performance* (Version 0.4.5) [Software]. <https://cran.r-project.org/web/packages/performance/index.html>.
- Macha, Jürgen. 1991. *Der Flexible Sprecher. Untersuchungen zu Sprache und Sprachbewußtsein rheinischer Handwerksmeister*. Köln: Böhlau Verlag.
- Mattheier, Klaus J. 1980. *Pragmatik und Soziologie der Dialekte. Einführung in die kommunikative Dialektologie des Deutschen*. Heidelberg: Quelle und Meyer.
- Mattheier, Klaus J. 2009. Kommunikationsprofil: ein zentrales Analysefeld der Dialektsoziologie – am Beispiel des Heidelberger Dialekts. In Ekkehard Felder (ed.), *Sprache*, 235–246. Berlin: Springer.
- Meyerhoff, Miriam. 2006. *Introducing sociolinguistics*. London: Routledge.

- Milroy, Lesley. 1987. *Language and social networks*. Oxford: Blackwell.
- Milroy, James & Lesley Milroy. 1993. Mechanisms of change in urban dialects: The role of class, social network and gender. *International Journal of Applied Linguistics* 3(1). 57–77.
- Nakagawa, Shinichi & Holger Schielzeth. 2013. A general and simple method for obtaining R^2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution* 4(2). 133–142. doi: 10.1111/j.2041-210x.2012.00261.x
- Oberholzer, Susanne. 2018. *Zwischen Standarddeutsch und Dialekt. Untersuchung zu Sprachgebrauch und Spracheinstellungen von Pfarrpersonen in der Deutschschweiz*. Stuttgart: Steiner.
- Rampton, Ben. 1997. Second language research in late modernity: A response to Firth and Wagner. *The Modern Language Journal* 81(3). 329–333.
- Rash, Felicity J. 2002. *Die deutsche Sprache in der Schweiz: Mehrsprachigkeit, Diglossie und Veränderung*. Bern: Lang.
- R Core Team. 2019. *R* (Version 1.2.5019) [Software]. <https://www.r-project.org>.
- Romaine, Suzanne. 2003. Variation in language and gender. In Janet Holmes & Miriam Meyerhoff (eds.), *The handbook of language and gender*, 98–118. Oxford: Blackwell.
- Sankoff, David & Suzanne Laberge. 1978. The linguistic market and the statistical explanation of variability. In David Sankoff (ed.), *Linguistic variation: Models and methods*, 239–250. New York: Academic Press.
- Schneider, Christa. submitted. *Gvätterlich oder Spiusch? Sprachwandel und Sprachvariation im Berndeutschen des Berner Mittellandes*. [PhD Thesis University of Berne]
- Siebenhaar, Beat. 1994. Regionale Varianten des Schweizerhochdeutschen. Zur Aussprache des Schweizerhochdeutschen in Bern, Zürich und St. Gallen. *Zeitschrift für Dialektologie und Linguistik* 61(1). 31–65.
- Siebs, Theodor. 1969. *Deutsche Aussprache. Reine und gemässigte Hochlautung mit Aussprachewörterbuch*. Ed. by Helmut de Boor, Hugo Moser & Christian Winkler. Berlin: de Gruyter.
- Sonderegger, Stefan (2003): *Althochdeutsche Sprache und Literatur: Eine Einführung in das älteste Deutsch: Darstellung und Grammatik*. Berlin: de Gruyter.
- Studler, Rebekka. 2019. Ambivalente Spracheinstellungen und was dahintersteckt: Mentale Modelle im diglossischen und plurizentrischen Kontext der Deutschschweiz. In Lars Bülow, Kristina Herbert & Ann-Kathrin Fischer (eds.), *Dimensionen des sprachlichen Raums: Variation – Mehrsprachigkeit – Konzeptualisierung*, 407–427. Wien: Lang.
- Tagliamonte, Sali. 2012. *Variationist sociolinguistics: Change, observation, interpretation*. Malden: Wiley-Blackwell.
- Trudgill, Peter. 1972. Sex, covert prestige and linguistic change in the Urban British English of Norwich. *Language in Society* 1. 179–195.
- Trudgill, Peter. 1974. *The social differentiation of English in Norwich*. Cambridge: Cambridge University Press.
- Werlen, Iwar. 1988. Swiss German Dialects and Swiss Standard High German. Transl. by Regula Radvila. In Peter Auer & Aldo di Luzio (eds.), *Variation and convergence: Studies in social dialectology*, 94–124. Berlin: de Gruyter.
- Werlen, Iwar. 1998. Mediale Diglossie oder asymmetrische Zweisprachigkeit? Mundart und Hochsprache in der deutschen Schweiz. *Babylonia* 1. 22–35.
- Werlen, Iwar. 2004. Zur Sprachsituation der Schweiz mit besonderer Berücksichtigung der Diglossie in der Deutschschweiz. *Bulletin VALS-ASLA* [Vereinigung für angewandte Linguistik in der Schweiz] 79. 1–30.

- Wickham, Hadley, Winston Chang, Lionel Henry, Thomas Lin Pederson, Kohske Takahashi, Claus Wilke, Kara Woo, Hioraki Yutani & Dewey Dunnington. 2018. *ggplot2* (Version 3.1.1) [Software]. <https://cran.r-project.org/web/packages/ggplot2/index.html> (accessed 27 May 2020)
- Wolfram, Walt & Erik Thomas. 2002. *The Development of Afro-American English*. Malden, MA: Blackwell.
- Wolfram, Walt. 2007. Sociolinguistic myths in the study of African American English. *Language and Linguistics Compass* 1(4). 292–313.

Appendix

Text 1: Newspaper text

Nur unterschreiben und sich dann mit gutem Gewissen zurücklehnen, so einfach wollte es Bauer Franz Lehner aus dem niederbayrischen Rain den Unterzeichnern des Volksbegehrens «Rettet die Bienen» nicht machen. Direkt nach dem grossen Erfolg der Initiative vergangene Woche hat er daher über Facebook Blühpatenschaften angeboten: Für 30 Euro im Jahr kann man bei ihm eine 50-Quadratmeter-Parzelle pachten, für 50 Euro gibt es die doppelte Fläche. «Ich säe dann dort ideale Futterpflanzen für Bienen und andere Insekten», erzählt er im Gespräch. Es wird nicht gedüngt, es werden auch keine Pflanzenschutz- oder Düngemittel verwendet. Eigentlich hätten auf dem Feld Kartoffeln wachsen sollen. Doch statt nun am siebten Tag zu ruhen und sich glückliche Bienen auf bunten Blüten vorzustellen, tönt der Bauer am Telefon ziemlich gestresst. «120 Anrufe in den letzten Tagen ich werde überrollt», sagt er etwas erschöpft. Im Hintergrund klingelt dazu auffordernd ein Zweittelefon. Er sei noch nicht einmal dazu gekommen, den Pachtvertrag sauber auszuarbeiten. Schließlich muss alles seine bürokratische Ordnung haben, es geht um Umsatzsteuern, anteiligen Dieserverbrauch seiner Traktoren, Vertragslaufzeiten und anderes mehr. Die Zeit drängt, denn Ende März / Anfang April sollte ausgesät werden. Die von Lehner zu Beginn eingepflanzten Hektare reichen ob der Bienen-Begeisterung, die Lehner vor allem von Münchnern, aber auch von Nachbarn und sogar Menschen aus Oldenburg und Erfurt entgegengebracht wird, gar nicht. Er hat bereits den Besitzer des direkt angrenzenden Feldes sowie einen dritten Kollegen aus Rain als weitere Blühwiesenanbieter gewonnen. Die Idee hat Kollegen in ganz Bayern inspiriert. Über soziale Netzwerke oder die regionalen Geschäftsstellen des Bayerischen Bauernverbandes bieten mittlerweile an die hundert Landwirte Blühpatenschaften an.

Text 2: Composed text

Ein Künstler hat ein echtes Konzept erstellt, mit dem er Käse aus Kuhmilch kochen kann. Darüber hat er sogar Bücher geschrieben. Dazu sucht er sich zuerst am Bach ein Tuch aus mehreren Tüchern aus und macht ein Loch rein. Schlussendlich isst er mit seiner Frau und seinen Kindern den Käse. Er ködert damit auch Kunden, die lachen, den Käse in den höchsten Tönen loben und ihn deshalb kaufen. Im Kiosk hat er hierfür gekündigt. Er konnte nicht mehr länger als Verkäufer an einer Theke arbeiten. Dieses verkorkste Leben konnte er nicht mehr auf die Reihe kriegen.

Text 3: Translation task

- Ich schneide das auf, damit wir alle davon nehmen können.
- Komm, wir nehmen ein Taxi, damit wir so schnell wie möglich nach Hause kommen.
- Das Mädchen, das da steht, hat mich nach dem Weg gefragt.
- Der Kollege, der mich gestern besucht hat, ist heute abgereist.
- Ich gebe dir die Jacke, damit du nicht kalt bekommst.
- Das Puppenhaus, das meine Nichte bekommen hat, hat Tischchen und Bettchen drin.
- Ich mache das heute, damit ich morgen frei habe.
- Die Frauen, die heute mit mir geredet haben, kenne ich alle von der Uni.
- Das Häuschen, das hier gebaut wird, wird mein zukünftiges Zuhause.

Table 17: Variation of (k) according to previous and following sound.

16 speakers	Variant	Model 3 integrated data (n.s.)		Model 3 integrated data (n.s.)	
		Previous sound		Following sound	
		n	% of total	n	% of total
Liquid	Affricate [kx]	19	15.3 %	24	16.0 %
	Plosive [k ^h]	105	84.7 %	126	84.0 %
NA	Affricate [kx]	140	18.5 %	9	12.0 %
	Plosive [k ^h]	617	81.5 %	66	88.0 %
Nasal	Affricate [kx]	8	20.5 %	5	100.0 %
	Plosive [k ^h]	31	79.5 %	0	0.0 %
Obstruent	Affricate [kx]	4	12.5 %	30	17.1 %
	Plosive [k ^h]	28	87.5 %	145	82.9 %
Vowel	Affricate [kx]	55	14.6 %	163	17.6 %
	Plosive [k ^h]	323	85.4 %	762	82.4 %



Part II: Syntactic-morphological dimension

Grit Nickel

Intra-individual Variation in Nominal Inflection: Analyses of Directly Elicited Data of the Bavarian Linguistic Atlas

Abstract: With the aim of modelling the areal dimension of variation, dialectology has operated with the construct of base dialect. In research projects such as the Bavarian Linguistic Atlas (Bayerischer Sprachatlas), individual performance has been treated as being representative of the local dialect. At the same time, the editors of the Bavarian Linguistic Atlas have been conscious of variation within the dialect data, but a systematic analysis of intra- and inter-individual variation remains a gap in research. In this article, the aspect of variation with regard to the nominal inflectional system will be considered on two levels: Firstly, variant forms of number marking in a given local dialect and variation regarding the inventory of plural markers are systematically analysed. Secondly, systematic variation inherent in Bavarian inflectional morphology in the form of optional plural marking will be discussed. In an exemplary way, the analyses show that the evaluation of intra-individual variation may aid in the categorisation of plural markers, thus improving our understanding of the nature of inflectional processes as a whole.

Keywords: Dialect morphology, nominal plural inflection, intra-individual variation, morphophonology, *Bayerischer Sprachatlas*

1 Introduction

Research on intra-individual variation (henceforth IAV) in dialect morphology is, for the most part, still a desideratum. Research on morphological variation, on the other hand, has been thriving over the past decade (especially in combination with morphological theory, cf., e.g., Schallert and Dammel 2019), as have, at least to some degree, studies on specific phenomena of areal morphol-

Acknowledgements: I would like to thank Karin Rädle, Monika Fritz-Scheuplein, Rosemarie Spannauer-Pollmann, Elisabeth Wellner and Alois Dicklberger for granting me access to the original BSA-questionnaires or providing me with scans thereof. Without their help, the depth of the study would not have been possible. Furthermore, I would like to thank the reviewers for their insightful and constructive comments on earlier drafts.

<https://doi.org/10.1515/9783110743036-006>

ogy. By integrating the aspect of IAV in an empirical study on dialect nominal inflection, these current lines of research on morphological variation are taken further. The dialect data stem from a research project in traditional dialectology;¹ hence, IAV has not systematically been taken into account in the research design. So, to what extent can we actually detect IAV in survey data of this kind?

As a starting point, some conceptual and methodological issues of IAV within the empirical framework of dialectology will be addressed and discussed. Besides these methodological considerations, the analysis of dialect data enables us to explore the formal types of inflectional variation and expand on some more general thoughts on the nature of plural marking in the respective dialects. We can observe different types of IAV regarding nominal plural inflection in the data material, all of which constitute a specific trait of dialect morphology in general or, in some cases, of Bavarian morphology in particular. A considerable range of these instances of IAV occurs when speakers choose varying strategies of plural marking. IAV of this type can be attributed to a change of plural marking in process or to variation in the vertical dimension. Another kind of IAV affects only morphophonological plural marking strategies in Bavarian dialects. In this case, IAV occurs at the interface of morphology and phonology (and phonetics, as we will see), resulting in some methodological repercussions for the classification of plural markers: When do intra-paradigmatic alternations constitute a plural marker, when do they count as free phonetic variation and how much variation is tolerated for one specific marker?

While the above-mentioned cases of IAV refer to variation with respect to the inventory of plural markers, other instances are attributed to a systematic feature of the Bavarian nominal inflectional system: the plural information is marked optionally if the surrounding morphosyntactic context does not resolve number ambiguity. This provokes a more general question concerning whether the coding of plural information is necessarily attributed to inflection morphology or plural coding has to be located at the interface between morphology, syntax and communication requirements and functionality.

This chapter is arranged as follows: In Section 2, some preliminary thoughts on the conception of variation in dialectology will be addressed. In Section 3, a brief outline of the methodological approach will follow. The empirical analyses focuses on two research aspects:

1 Traditional here refers to traditional dialect geography of the Marburg School (cf. Schrambke 2010) as well as to the so-called second generation of linguistic atlases following Hotzenköcherle's *Sprachatlas der Deutschen Schweiz* (Linguistic Atlas of German-speaking Switzerland, 1962–1997), which has also been an inspiration to the Bavarian Linguistic Atlas (cf. Munske 2015: 3–5).

1. IAV with respect to the inventory of dialectal plural markers, comprising a qualitative analysis of IAV in number marking, i.e. variant singular and/or plural forms (Section 4.1), and of IAV at the interface of phonology, phonetics, and morphology in Bavarian dialects (Section 4.2).
2. IAV due to systematic variation in the form of optional plural marking in Bavarian dialects (Section 5).

Owing to the heterogeneous nature of the instances of IAV found in the data, a discussion of the implications on inflectional morphological, on our concept of morphological variation, and on methodological consequences will conclude the chapter in Section 6.

2 On the notion of variation in dialect data

One of the core concepts of dialectology is that of the individual performance of an ideal speaker (*non-mobile old rural males and females*, NORMs and NORFs, cf. Chambers and Trudgill [1998] 2009) as being representative of a given local dialect, thereby assuming a relatively high uniformity (i.e. homogeneity) in their use of dialect (cf. König 2010). Consequently, the dimension of variation *within* a single speaker in one particular speech style (or at one speech level, i.e. IAV) has not played a major part (if any at all) in the research design. Instead, the approach of dialectological endeavours in the past 150 years has been “monodimensional” (Lameli 2010: 583), insofar as their primary research aim was to model the areal dimension of variation, by frequently organising linguistic information in maps.² Surveying IAV and thereby extending the monodimensional scope of dialect atlases and grammars, thus, opens up a new perspective and new insights in (traditional) dialectology (cf. Bülow, de Bot, and Hilton 2017: 59; Bülow, Scheutz, and Wallner 2019: 98–99).³

The Bavarian Linguistic Atlas (*Bayerischer Sprachatlas*, hereinafter BSA) is one of the more recent research projects of the monodimensional tradition. Here, too, the research goal was the elicitation of base dialect, i.e. the least standard

² This conclusion also holds for dialect grammars (*Ortsgrammatiken*) and regional grammars (*Landschaftsgrammatiken*) in the structuralist or neo-grammarians tradition: Typically, they consist of introspective data; i.e. the dialect competence of the author has been the source of phonological and morphological paradigms (cf. Fischer 2019).

³ Atlas projects of a pluridimensional orientation, on the other hand, show awareness of intra- and inter-individual variation in connection with various social factors and collect survey data with this in mind (cf., e.g., Lameli 2010: 583–585; Thun 2005).

speech level, by collecting direct data from NORMs and NORFs via interviews with trained fieldworkers (cf. König 1997; Munske 2015). What makes the BSA-corpus an ideal testing ground for surveying IAV without needing fresh data is the makeup of the raw data. The vast majority of the directly collected data consists of the so-called primary materials, meaning the informants' answers to the extensive questionnaire, the variety being the (intended) base dialect (cf. König 1997: 26). In addition, the secondary materials are made up of variants or (metalinguistic) comments the fieldworker recorded. According to König (1997: 26), mismatches in variants of BSA's primary and secondary materials are the result of "different stages of language evolution [. . .], there are situation-specific variants ranging from old dialect to standard language" ("verschiedene Stufen der Sprachentwicklung [. . .], es sind situationsspezifische Varianten, die vom Altdialekt bis zur Hochsprache reichen", my translation). In addition to the primary and secondary materials, the so-called spontaneous materials consist of linguistic forms that have been labelled "spontaneous" by fieldworkers. These "spontaneous" forms usually vary from the base dialectal forms of the primary materials, with the informant producing them either without any further deliberation or during spontaneous speech in the interview (cf. König 1997: 28; König 2010: 503).⁴ Therefore, IAV occurs at the intersection of the informant's given task (i.e. producing base dialect) and the informant providing different variants or producing them "spontaneously" during the course of the interview (Figure 1). While variants may occur in the variety of base dialect itself, they may also be attributed to different speech levels within the dialect-standard continuum, to dialect (or language) change, or to variation in the areal dimension, making IAV in these cases consistent with Ulbrich & Werth's type of "functionalised IAV" (cf. Ulbrich and Werth in this volume).

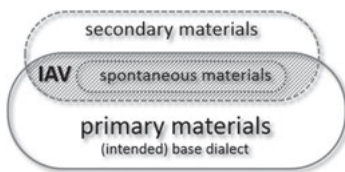


Figure 1: Dimensions of variation in BSA-materials.

In his overview on methods and standards for investigating language in space, König (2010: 503) summarises the following guidelines for fieldworkers to follow when encountering variation:

⁴ Note that the interview usually does not take place in the variety of base dialect; this is merely the objective of the interview and not necessarily identical with the informants' spontaneous speech variety.

If different variants are produced, the fieldworker may ask questions about differences in usage. The replies need to be taken seriously since the informants usually have a competence that encompasses more than one variant. [. . .] He/she is aware of which forms of speech conform to the old 'local norm' and can provide information about the significance of 'more recent' variants and the conditions under which they are appropriate. Needless to say, all this must be noted in the protocol and it must always be asked to what extent the information offered corresponds to actual usage, for this is not always the case [. . .].

Despite the potentially varying interests and motivations of the BSA-fieldworkers and their specific way of recording (or not recording) variants and comments (cf. König 1997: 30), instances of intra- and inter-individual variation and comments of both the informant and the explorer are part of BSA's materials (cf. Section 3). With respect to the specifics of the BSA-corpus, inter-individual variation (IEV) here refers to variants that were produced not by the main informant, but by additional informants present during the interview.

Because of the primary research interest of depicting the areal dimension of variation in the (intended) base dialect, a systematic analysis of IAV in the primary and secondary materials remains a desideratum in the published volumes of the Bavarian Linguistic Atlases or elsewhere.⁵ The examples in Figure 2 illustrate where we can find IAV in the data and how they were recorded by the fieldworker.

For example, the informant from Nabburg (North Bavarian) produced two variants for the plural of *Gabel* 'fork', the spontaneous variant ('sp.') with a nasal suffix (*gəb̥l̥n*) and the second variant marked with analogous umlaut (*gāb̥l̥*). In the example from Oberdolling (Central Bavarian), the informant produced a

Nabburg (SNOB)	3. <u>"die Gabel"</u> /Pl.		<i>gəb̥l̥ / gāb̥l̥ (sp.) gəb̥l̥n</i>
Oberdolling (SOB)	4. <u>"Halm"</u>	090.04	<i>həem</i>
	5. <u>"Halme"</u>	090.04	<i>həem:ø / həem / h̥dem</i> <i>Stroh + Halm sp. h̥dem [sp. h̥dem sp. h̥dem sp. h̥dem]</i>

Figure 2: Examples of IAV in BSA-materials (*Gabel* 'fork' and *Halm* 'stalk').

⁵ By taking into account sociopragmatic factors in Bavarian major cities, two of the BSA volumes address pluridimensional aspects and therefore do include variation in the vertical dimension to some extent (*Sprachregion Nürnberg, Sprachregion München*, cf. Mang 2004; Rein 2005).

zero-plural form *hoem* ‘stalk’ (see the transcription at the right-hand side, line 5) and refrained from using the form with umlaut plural (see the comment ‘*hæm*: Ø’ at the left-hand side). However, the fieldworker recorded that, later in the interview, the informant did use the umlaut form *hæm* for the translation of *Stroh* ‘straw’ and *Heu* ‘straw/hay that has been cut’.⁶ These two examples illustrate that, in order to find IAV in the data, we are dependent on an attentive explorer noticing and recording any instance of the informant producing another variant or contradicting himself/herself.

On a related note, another consideration is pertinent to this study: How much of actual language use do the directly collected data represent? This question addresses one of the core methodological issues of traditional dialectology. König (2010) refers to the (intended) base dialect as a “construct”, the informant hence producing base dialect “virtually as a series of quotations” (König 2010: 502). Auer (2010) also emphasises this aspect. According to him, the collected direct data are the product of a “constitutive process for data” (“Datenkonstitutionsprozess”, Auer 2010: 30, my translation): “Der Explorator verwandelt die Antworten der Gewährspersonen also in Daten; das Konstrukt Grunddialekt wird durch ihn genauso geformt wie durch den Informanten.” (“Therefore, the fieldworker transforms the informants’ answers into data; the construct base dialect is moulded through him in the same way as through the informant.”, Auer 2010: 34, my translation) Going back to the examples of IAV in Figure 2, the spontaneous form *gōb|n* probably comes closer to the informant’s actual use of language than the analogous umlaut form *gā|b|*. In any case, both variants seem to be known to the informant. As for the second example, we cannot derive from the fieldworker’s record whether the informant was, for whatever reason, not aware of the umlaut form when being asked, or whether this form belongs more to the lexical domain than to inflection, denoting the entirety of cut hay/straw. From this, we can draw the preliminary conclusion that IAV in the BSA-data are well suited for the analysis of the plural marker inventories of any of the studied local dialects (cf. Nickel and Kürschner 2019); however, we should only carefully draw conclusions regarding actual language usage. Because of the BSA-research aim of surveying all levels of grammar and subsequently enabling the researcher to compose a dialect grammar for each local dialect (Klepsch 2003: 31), the BSA-questionnaire consists mostly of

6 The form of transcription in this chapter is based on the Teuthonista phonetic transcriptions of the BSA-raw data, thereby only presenting diacritics if relevant to the morphological (i.e. morphophonological) research question. In the case of *hæm*, the diacritic has been included, as it indicates the vowel backness (front) in contrast to the unmarked central [a]. In Central Bavarian, /ä/ is the dialect equivalent to the umlaut vowel MHG *ä*. Following the transcript, I give a translation of the meaning in single quotation marks.

isolated word forms (i.e. single items). How frequently and in which contexts any given linguistic form (in our case: the respective plural marking strategy) is used in free speech, cannot be answered by evaluating these single items.

3 Method

This study of IAV is conducted as part of a more large-scale, in-depth analysis of nominal inflectional morphology in 37 survey locations. By focusing on the East Franconian, North and Central Bavarian dialect zones, we can compare the inflectional systems of closely related and yet distinct dialects of one variety: East Upper German (cf. Lameli 2013: 168–173). With the objective of being able to analyse inflection morphology as well as the interaction between morphological and phonological processes, each of the surveyed locations was selected with respect to different phonological and morphological features, generating a network of survey locations representing different linguistic variants for each dialect zone (Figure 3). For each of the survey locations, I edited the relevant raw data of BSA, by analysing and annotating all items of the questionnaire relevant to nominal inflection (271 lemmas in total).⁷ The raw data of the Bavarian Linguistic Atlases (i.e. the digitalised Teuthonista phonetic transcriptions) are accessible via a digital edition called BayDat (*Bayerische Dialektdatenbank*, Bavarian Database of Dialects). This makes it possible to “cross-connect” (Lameli 2010: 586), edit and analyse the raw data of the six sub-projects of BSA for the entire language space of Bavaria.

Out of the total amount of 8.125 singular and plural forms in my corpus, 251 instances of intra- and inter-individual variation (3% of all data sets, with one data set comprising a singular and a plural form) were found, meaning more than one form for the respective value of number or case is documented in the materials.⁸ Only cases of morphological or morphophonological variation were included, while cases of genuine phonetic variation were discarded. Because of the heterogeneous nature of the instances of variation found and their manageable number, I conducted a qualitative analysis, thereby also accessing the original questionnaires in

⁷ The BSA study area, the Free State of Bavaria, was divided into six sub-projects, each sub-project restricted to its respective administrative region (*Regierungsbezirk*) in both exploration and publication. The questionnaires of each of the sub-projects are similar for the most part, only varying in a maximum of 10% of project-specific questions (Munske 2015: 6). As this study focuses on East Upper German dialect zones, data from the Swabian (i.e. West Upper German) sub-project of SBS has not been included.

⁸ Variation in case marking makes up less than 5% of the corpus (n=12) and will not be considered in this study.



Figure 3: East Upper German dialect regions of Bavaria according to Wiesinger's (1983) classification, distribution of surveyed locations and work areas of the sub-projects of BSA.⁹

order to review all of the fieldworkers' comments. In the light of the considerations in Section 2, IAV in my corpus is primarily ascribed to the individual informant and his/her use of language. In this approach, I am considering the data apart from the original interview design of one NORM/NORF being a representative speaker for the local dialect. Variation is therefore treated as speaker-inherent variation, with IAV occurring during the controlled setting of an interview. Variation in this sense "occurs independently of the context or communication partner, i.e. in the same style of speech in similar situations" (Bülow, Scheutz, and Wallner 2019: 98).

IAV can be found in both the primary and the secondary materials (cf. Section 2), meaning that variation can be attributed to base dialect itself, to other varieties in the stylistics dimension (i.e. the dialect-standard continuum) or to

⁹ This map and following maps were created with REDE *SprachGIS* (Schmidt et al. 2008)

the fieldworker's data elicitation techniques. Figure 4 illustrates the composition of the data, i.e. the various types and contexts of intra- and inter-individual variation (for 48% no information can be provided by the materials or my own analyses). The largest part of the variants constitutes IAV. Only 11 instances (4%) are cases of IEV, and, as this study's primary interest is IAV, these cases will be disregarded henceforth. 14% of IAV can be ascribed to the so-called spontaneous materials: the informant replied to the fieldworker's question with a spontaneous answer, frequently correcting himself/herself afterwards, and thereby producing a different variant (see, for instance, the spontaneous form *gōb̥n* in Figure 2). According to König (1997: 26), the corrected answer does not necessarily represent an uncommon linguistic form; it just might not be germane to the local norm (and therefore pertinent to the purpose of BSA-data collection of [re-]constructing the local base dialect). As this study is not restricted to the variety of base dialect, I treated these forms as part of the individual informant's language use or his/her competence. The same applies to 12 variants (5%) also featuring comments by the informant relating to the vertical or the diachronic dimension of variation, e.g. "modern", "that's what the farmers say", "more genteel", etc.

In some cases, IAV is the result of the fieldworker's method of data elicitation: the variants were either produced when the fieldworker repeated the question ("Nachfrage", 1%) or the informant accepted a linguistic form suggested by

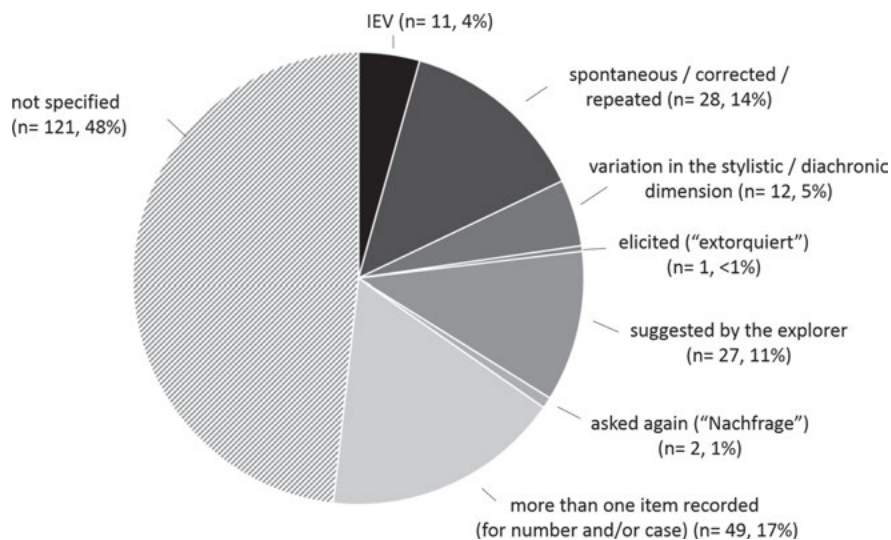


Figure 4: Different types and contexts of intra- and inter-individual variation in the materials (n = 251).

the fieldworker (11%). If the fieldworker had to ask and suggest a form multiple times, the BSA-terminology speaks of “extortion” (“Extorquieren”, <1%). Another class of IAV (17%) is not related to the fieldworker’s data elicitation techniques, but to the design of the BSA-questionnaire. For a fraction of the nouns elicited, more than one item was requested for the respective slot in the inflectional paradigm (typically an isolated singular or plural form followed by a model sentence or phrase the informant was asked to translate into his/her local dialect), or the singular and/or plural form was requested for several case values (dative and/or accusative beside nominative). The comparison of these multiple forms yielded evidence of IAV relating both to the inventory of plural marking strategies as well as to systematic variation in nominal inflection morphology, as Section 5 will show. The informant’s and fieldworker’s comments as well as the type of occurrence of the IAV instances will be one aspect of the analyses below.

4 IAV in number marking

By making up 3% of all of the data, intra- (and to a lesser degree inter-)individual variation constitutes a marginal phenomenon in the BSA raw data on nominal inflection morphology. Given the standardised elicitation technique and the research aim of documenting the most archaic forms, this is somewhat expected and part of the research design limitations (cf. Seiler 2010: 514). The instances of IAV observed in the materials nonetheless allow us to deduce some tendencies of variation in plural marking in the study area, subdividing variation in nominal inflection in Bavarian dialects into different types:

1. IAV because the informant produced varying singular or plural forms (IAV thus comprising nouns in different declension classes, cf. Section 4.1).
2. IAV due to phonetic variation, hence variation regarding the informant’s specific production of a morphophonological plural marker (section 4.2).
3. IAV owing to optional plural marking, a systematic form of variation in plural marking specific to Bavarian dialects¹⁰ (section 5).

In all of these cases, the informant selected or produced different variants (i.e. forms) for the same linguistic function. The results on IAV in this section will hence focus on formal variation considering specific plural marking strategies, thereby including variation in both word structure and paradigm.

¹⁰ Bavarian here refers to the dialect area (“bairische Dialekte”) and not the Bavarian territory (“bayerisch”).

4.1 IAV due to different number marking strategies

IAV with respect to different number marking strategies makes up a significant and coincidentally heterogeneous part of the corpus (101 instances [40%] of variation with respect to the singular or plural form for 66 lemmas). Despite the small number of IAV tokens for each of the lemma types, the variants can be assorted along the lines of superior assignment principles for declension classes found in the entire BSA-corpus and outlined by other research on dialect nominal inflection as well as in diachrony. The choice of the marker type for the plural information and, by extension, IAV in this regard by no means constitute non-systematic free variation.

Because of the manifoldness of instances found, I will present the findings of the qualitative analysis in the form of seven exemplary cases, the first batch comprising variation regarding the plural marker type (additive, modificatory vs. zero marking) and gender and semantics as assignment criteria:

I. The additive plural marker *-er* is typical for neuter nouns in both East Franconian and Bavarian dialects (frequently in combination with umlaut as a cumulative marker, e.g. Bavarian *dōa* – *dēara* ‘gate’, see also Rowley 1997: 195). With gender being a major assignment criterion for declension, it can trigger a change in plural marking and thus in declension (cf. Kürschner and Nübling 2011; Nickel and Kürschner 2019: 380–384). In our data, this becomes apparent in IAV for the neuter nouns *Bett* ‘bed’, *Geleise* ‘track’, *Herz* ‘heart’, all of them varying between plural forms with the suffix *-n* or zero marking (e.g. *betn*, *gloisn*, *hadsn*) vs. the plural formed by adding the neuter suffix *-er*: *beta*, *gloisa*, *hadsa*. Note that the geographical distribution of analogues *-er* varies for each of the neuter nouns (see Schirmunski 1962: 425–427).

II. *Fuchs* (‘fox’) and *Mutter* (‘mother’), both having strong inflection in MHG, vary in plural marking between strong vs. weak inflection, e.g. Sg. *vugs* – Pl. *vugsn* vs. *vigs* and *muda* – *mudan* vs. *mida* in the dialect of Pfofeld (transition zone between North Bavarian and East Franconian, see Figure 5). Schmeller (1821: §848 and 1872–1877, 1: 686) mentions both types of inflection for ‘fox’ and ‘mother’ in our study area. IAV (and the change in declension) in this case is attributed to weak inflection tending to be the domain of animated nouns in North and Central Bavarian and East Franconian, as other studies linking plural marking to the semantic notion of animacy have shown (cf. Köpcke 1994 on the Standard variety; Rowley 1997; see also Kürschner 2008). However, IAV is an indication of language change in process: according to one of the informant’s comments, the weak form *mudan* is considered to belong to the past (“früher”).



Figure 5: Distribution of locations over Bavaria and Wiesinger's (1983) dialect classification.

In reference to the aforementioned examples, Rabanus' (2010) account of the areal ("horizontal") vs. stylistic ("vertical") dimension of variation in areal morphology adds an interesting perspective on formal variation:

However, horizontal contrasts also reappear in the vertical dimension, i.e. two originally geographically separated variants are now present within the same area, but with different pragmatic or social values. [...] Vertical reinterpretations of horizontal contrasts increase the effect of language contact, originally restricted to spatially contiguous varieties. (Rabanus 2010: 805)

IAV in these cases would therefore be seen "as the result of competition between different grammars" (Rabanus 2010: 805). In the case of 'bed', for example, both

plural variants are found in the study area (although Schmeller only mentions the form *betn*, cf. Schmeller 1872–1877, 1: 302), the “vertical reinterpretation of horizontal contrasts” thereby effecting the social value of the two variants.

While the previous case examples varied with respect to the plural marker type, the variants in example III include nouns that are not marked for plural by inflectional means:

III. In some of the local dialects, we observe IAV in the plural marking for *Mann* ‘man’ and *Weib* ‘woman’, with the informants producing, respectively, a cumulative and additive vs. a suppletive plural form, e.g. *mānalait*, *mansbildā* and *vaebsbildā*. According to some of the informants, these suppletive forms are more common (albeit more “salopp”, i.e. casual in their social value). Furthermore, there is IAV between an inflectional plural form vs. a diminutive form in the East Franconian local dialect of Burgbernheim: *vesdər* vs. *vesdli* ‘celebrations’, *drēd* vs. *drēdli* ‘wires’, with the informant in each case commenting “das ist die Mehrzahl” (“this is the plural form”, my translation).¹¹ In these cases, the inflectional (additive) plural form constitutes an artefact owing to the informant’s passive knowledge and his/her competence, while the suppletive form appears to be the one used in everyday communication. Thus, variation in these cases can be ascribed to methodological effects of data collection, namely task effects (cf. Seiler 2010: 514).

The next cases refer to IAV and specific morphophonological markers in the study area, both cases of IAV comprising intra-paradigmatic levelling:

IV. Due to regular sound change in some of the Bavarian dialects, the synchronic pronunciation of MHG diphthong *ei* is correlated to the count of syllables in the historic word form. In monosyllabic words, MHG *ei* is pronounced as *oa* (e.g. *oa* ‘egg’), while MHG *ei* in polysyllabic word forms corresponds to *oi*, e.g. *oia* ‘eggs’ (cf. Kranzmayer 1956: §20h; Rowley 1997: 66). The intra-paradigmatic alternation of MHG *ei* between a monosyllabic singular form and a disyllabic plural form constitutes a modificatory plural marker “similar to umlaut” (“umlautähnlich”, Rowley 1997: 66, my translation). IAV related to this phenomenon is the result of intra-paradigmatic levelling in the singular cell of the paradigm, resulting in two varying singular forms: sg. *goaf* vs. *goef* – pl. *goif* ‘goat’ in Tirschenreuth (North Bavarian). If intra-paradigmatic levelling occurs in the plural cell of the paradigm, we can observe two varying plural forms: sg. *loa* – pl. *loa* vs. *loi* ‘wage’ in Grafenkirchen (transition zone of North and Central Bavarian). In Central

¹¹ Suppletive plural forms in the form of a diminutive can occasionally be found in the entire study area, i.e. in Bavarian and East Franconian dialects.

Bavarian dialects, MHG *ei* is pronounced as *oa* independent of the syllable count (cf. Kranzmayer 1956: §20h.1). The case of IAV in the Central Bavarian dialect of Pasing (sg. *šdoα* – pl. *šdoα* vs. *šdoana* vs. *šdeana* ‘stone’) is therefore not attributed to intra-paradigmatic levelling, but to an analogous umlaut plural.

V. In the dialects of our study area, monosyllabic vowel lengthening occurred from MHG to NHG, thereby affecting the vowel quantity of monosyllabic singular forms and resulting in quantity alternations in the paradigm (cf. Rowley 1997: 115–116; Seiler 2009), e.g. sg. *dōx* – pl. *daxα* ‘roof’ and the analogous singular and plural form sg. *grōm* – pl. *grām* ‘ditch’ in Grafenau (Central Bavarian). These quantity alternations constitute a modificatory marker type, affecting the quantity of the root vowel. IAV concerning this marker type results either from intra-paradigmatic levelling in favour of the short vowel, e.g. sg. *šdīX* vs. *šdīX* – pl. *šdīX* ‘stitch’ in the East Franconian dialect of Gebsattel,¹² or, to a lesser degree, in favour of the long vowel, e.g. sg. *wīad* – pl. *wīad* vs. *wīad* ‘host’ in the North Bavarian dialect of Kallmünz (in both cases resulting in zero plural marking).

While the previous case examples either involved IAV within the plural cell of the paradigm or the plural marker strategy, examples VI and VII affect the singular form (which in turn has effects on the type of plural marking):

VI. IAV concerning the singular form can be found in all the dialects of the study area, only involving a small class of nouns. In all of these instances, there is variation between singular forms exhibiting the marker for plural vs. “unmarked” forms, e.g. sg. *ebvl* vs. *abvl* – pl. *ebvl* ‘apple’, sg. *flē* vs. *flō* – pl. *flē* ‘flea’, sg. *ōan* vs. *ōa* – pl. *ōan* ‘ear’. The common denominator of these “markedness reversals” lies in their semantics as collective or mass nouns and applies to nouns denoting fruit, microorganisms (“Kleinstlebewesen”) and geminate body parts (cf. Mayerthaler 1981: 48–58; Rowley 1997: 188–191).¹³ For each of the examples, the plural

12 According to the informant, both the lengthened and the short root vowel are possible in the singular form; other informants referred to forms with a lengthened vowel as older, sometimes only knowing them passively based on recollection (“Erinnerungsform”).

13 Markedness reversals can be found in the entire corpus, making up 177 instances of 8,125 items in total (2%). A review of all instances showed that these markedness reversals can be accounted for in large parts of the study area for each of the nouns involved, e.g. ‘apple’, ‘hand’ in East Franconian and Bavarian dialects, ‘dumpling’ in East Franconian, or ‘pot’, ‘chair’, ‘egg’ and ‘eye’ in Bavarian dialects. However, these examples illustrate that the class of nouns affected by those so-called markedness reversals is quite heterogeneous, and that the semantic notion of mass or collective nouns has more central (i.e. prototypical) members, while others are less central. Thus, we are in need of studies on how semantic categories may vary in different (local) dialects (e.g. whether semantic criteria vary in the areal dimension) and how

form is more frequently used than the singular form, resulting in the plural form being the unmarked feature for number and the plural marking entering the less frequent singular form (resulting in a zero plural).

VII. With the previous example only involving nouns with strong inflection (with the exception of the weak neuter noun ‘ear’), a second case of IAV concerning the singular form affects another specific class: MHG weak feminine nouns, also having a trochaic, disyllabic structure ending in a final unstressed schwa in NHG (e.g. *Kirche* ‘church’). In Upper German dialects, the singular of these feminine nouns is formed either by apocopation of the final schwa (*Kirch*) or by adding the nasal suffix of the plural form (*Kirchn̩*). Thus, IAV in this regard can be found between the apocopated singular form vs. the singular form with a nasal suffix in both Bavarian and East Franconian dialects, e.g. sg. *vleiX* vs. *vleiŋ* – pl. *vleiŋ* ‘fly’, Figure 6, line 5). For the data of the Swabian BSA-subproject (SBS), a systematic analysis of apocopated vs. non-apocopated singular forms in relation to the semantics of the noun did not find any “categorising criteria” (Zeisberger 2003: 147). Rowley (1997: 190), on the other hand, adduces markedness reversals “case-by-case” (“Von Fall zu Fall ließe sich so argumentieren”), albeit other factors might contribute as well. The snippet in Figure 6 illustrates the limits of semantic factors to the point: With ‘horsefly’, ‘house fly’, and ‘gnat’ being “Kleinstlebewesen” and each occurring “in droves” (“in Scharen”, Rowley 1997: 159), all of the nouns feature similar semantics, but vary in the form of the singular.

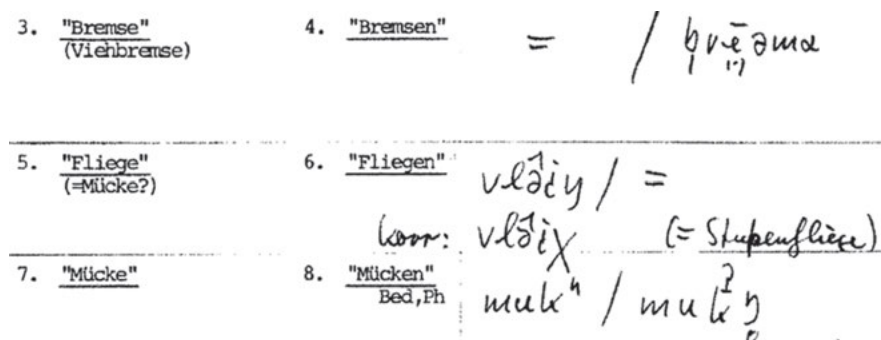


Figure 6: Apocopated vs. non-apocopated singular forms in the North Bavarian dialect of Groschlattengrün (SNOB) (‘horsefly’, ‘house fly’, ‘gnat’).

the extra-linguistic reality of each of the dialects surveyed may influence phenomena such as markedness reversals.

In summary, the instances of IAV presented in this section contain a variety of cases of variation in the marking of the singular or plural form. IAV can be attributed to (a) a change of plural marking in process, possibly coinciding with a “vertical reinterpretation of horizontal contrasts” (Rabanus 2010: 805; see examples I and II), (b) to task effects in the interview situation (example III), (c) to intra-paradigmatic levelling (for morphophonological plural markers, see examples IV and V), or (d) to IAV being immanent in the inflection system (see examples VI and VII).

4.2 Morphophonology revisited: Lenis/fortis contrasts

With the case examples IV and V in the previous section, the notion of morphophonology has already been introduced. These previous cases of IAV were the result of intra-paradigmatic levelling, which can also explain some of the variation discussed in this section. However, IAV (and variation in general) in this section relates to some core questions of morphophonology, namely to the basic issue of what actually constitutes an inflectional marker.

Alternations in consonantality are well established as a type of morphophonological plural marking in Bavarian dialects (cf., e.g., Rowley 1997; Seiler 2008). Diachronically, they are the result of dialect-specific phonological processes, the intra-paradigmatic alternations thereby occurring under purely phonological conditions in the stem’s coda, which is “not primarily designated for morphological symbolisation” (“Er ist für morphologische Symbolisierung nicht primär vorgesehen [. . .].“, Harnisch 1994: 284, my translation). Synchronically, contrasts in lenis/fortis constitute a phonological feature of North and Central Bavarian dialects: vowel length and the lenis-fortis distinction are correlated, with a long vowel preceding a lenis obstruent (sg. *vīš* ‘fish’) and a short vowel preceding a fortis obstruent (pl. *viʃ*). However, the correlation of vowel length and lenis-fortis contrast does not appear as “strict” (Harnisch 1995: 70) in our data as phonological and morphophonological studies typically imply, as the examples sg. *hěads* – pl. *hěətʃa* ‘heart’ (Windischeschenbach, North Bavarian), sg. *vīš* – pl. *viʃ* ‘fish’ (Pasing, Central Bavarian) show. While intra-paradigmatic lenis/fortis contrasts constitute a frequent morphophonological marker of the plural information, with some evidence in our data of occurrences independent of the original phonological environment and the alternation, therefore, being a productive marker, e.g. sg. *mūgŋ* – pl. *mukŋ* ‘gnat’ (Grafenau, Central Bavarian), sg. *ōbvʌ* – pl. *epʃʌn* ‘apple’ (Bernhardswald, North and Central Bavarian transition zone), the survey of all instances of lenis/fortis contrasts in our data reveals that the morphological patterns are more diverse than long vowel+lenis in the singular form and short

vowel+fortis in the plural form (Figure 7). This is exemplified by some instances of IAV: sg. *ōsd* – pl. *ēşd, eft, efd* ‘branch’ (Windischeschenbach, North Bavarian), sg. *ôğα* – pl. *âğα, âka* ‘field’ (Neukirchen am Inn, Central Bavarian).

There is a tendency of lenition to occur more frequently in additive plural forms (e.g. sg. *imp^h* – pl. *imb^hm* ‘bee’ in North-Central Bavarian Blaibach, sg. *mûkh* – pl. *mûğŋ* ‘gnat’ in Central Bavarian Reischach). In sum, the type of plural marking as well as the phonological environment are factors that can explain the lenis/fortis patterns and instances of IAV found in our data. However, these are mere tendencies and some of the variation found has to be ascribed to phonetics instead, thereby confirming Seidelmann’s account of the complementary vowel and consonant length being more of a “frame” that “allows for various fillings, even for modification” (“[. . .] eher als Rahmen verstehen, der unterschiedliche Füllungen, ja auch Modifikationen zulässt.”, Seidelmann 2002: 104, my translation; see also Seidelmann 2013).

These findings of a less strong correlation of vowel length and the lenis/fortis distinction in plural marking are supported by recent studies in instrumental phonetics. Moosmüller and Brandstätter (2014) and Klingler, Moosmüller, and Scheutz (2017) found sequences of long vowel and fortis consonant in both monosyllables as well as disyllabic CVCV-structures in Central Bavarian. Moreover, Kleber (2017) found evidence of an inter-generational sound change in progress

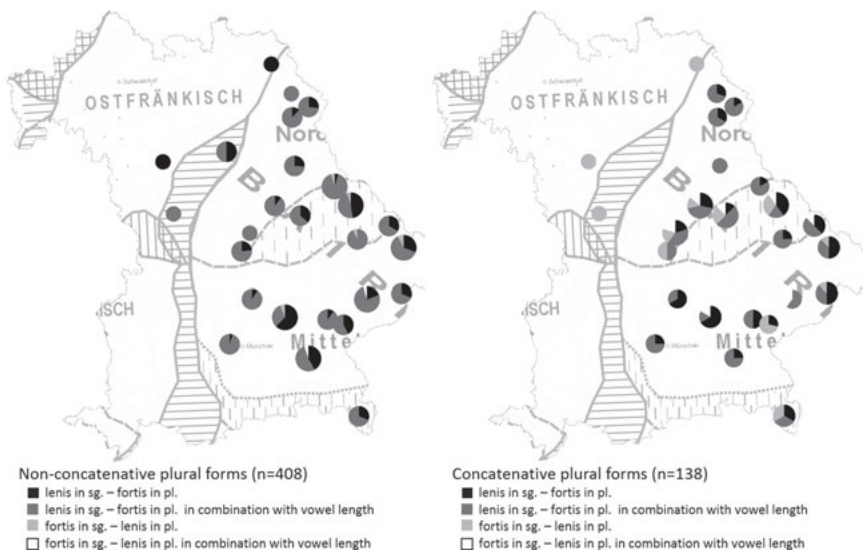


Figure 7: Frequency distribution of lenis/fortis patterns in concatenative (i.e. additive) and non-concatenative plural forms.

among Bavarian speakers in both production and perception (analysing only disyllabic structures) and argues for a contact-induced change.

In order to model lenis/fortis contrast as a productive plural marking strategy appropriately, we need to take into consideration these findings in phonetics and the variation found in our own data. Intra-paradigmatic lenis/fortis contrasts constitute less of a binary contrast, but rather a phonetic continuum (an aspect that is minutely captured by the Teuthonista notation system).¹⁴ The instances and nature of variation found in the data necessarily lead toward a deeper consideration of phonetics when it comes to morphophonological plural marking, and IAV as a concept can help to model plural markers by taking into account phonetic variation in the inflectional domain. However, the questions that cannot be answered by the existing data are the following. Where are the limits of phonetic variation for lenis/fortis contrasts as a morphophonological plural marking strategy? When does phonetic IAV lie outside the range of the speaker/hearer's tolerance? Do speakers allow for more ambiguity (i.e. variation) when there is a combination of different plural marking strategies, and is the pronunciation of lenis/fortis contrasts more distinct when this alternation constitutes the only marker of the plural information? Finally, alongside the contact-induced change Kleber (2017) found in the phonological system of younger Central Bavarian speakers, does this result in a change of the morphological system as well? Wildfeuer (2001: 189–190), for instance, found evidence of a change of plural marking for the noun *Tisch* 'table' in his apparent-time study of Kirchdorf's local dialect, with younger speakers using the zero plural form more frequently and older speakers producing lenis/fortis contrasts in combination with vowel length. Steininger (1994: 124), on the other hand, found evidence of optional plural marking (see Section 4.3) in the Central Bavarian location Oberneureutherwaid. The plural information is coded with a contrast in lenis/fortis if there is no other marker, but if a numeral disambiguates the plural information, there is no intra-paradigmatic alternation, with the lenis consonant occurring in the plural form: *tsβæ̃ di:z* 'two tables'. These

14 The Teuthonista diacritics allow for a very fine-grained transcription with, e.g., six different degrees of lenis and fortis consonants. During the duration of the fieldwork, the close phonetic transcriptions of the BSA explorers were repeatedly evaluated. In the case of the Linguistic Atlas of Lower Bavaria (SNiB), the interim review revealed that especially the representation of vowel quantities as well as lenis/fortis contrasts were difficult: "Die tatsächliche Realisierung verstößt häufig gegen die 'bairische Gesetzmäßigkeit' von Fortes nach Kurzvokal, Lenes nach Langvokal und Diphthongen." ("The actual articulation often contravenes the 'Bavarian law' of fortis after short vowels, lenes after long vowels and diphthongs", my translation, Eroms 2006: 23) In order to minimise these transcription effects, I only included lenis vs. fortis contrasts between base characters, but not diacritic nuances when typing the singular and plural forms and annotating plural markers.

accounts in dialect grammars on Central Bavarian dialects hence offer two diverging perspectives on the complex reality of lenis/fortis distinction at the interface of morphology and phonology as well as phonetics and need to be validated by fresh data.

5 Systematic variation in plural marking

So far, IAV in inflection morphology has entailed variation of number marking strategies, variants thereby being testaments to a change of plural marking in process, to intra-paradigmatic levelling, or as the result of “vertical reinterpretations” of competing grammars (cf. Rabanus 2010: 805). The instances of IAV presented in this section also comprise variation regarding plural marking strategies, but they come as an inherent quality of the dialect inflectional system. The choice of the respective plural marking strategy, here, is dependent on the morphosyntactic context. Therefore, IAV is linked to a more general question of whether the coding of plural information necessarily is attributed to inflectional morphology or whether plural coding has to be located at the interface between morphology, syntax and context.

5.1 IAV due to morphosyntactic context

IAV in this section is not to be found in the informant’s answer to one question as in Section 4.1, but in varying forms in his/her reply to multiple questions. As outlined in Section 3, more than one item was asked for some of the nouns elicited: The informant was asked to translate either a single plural form in combination with a plural form in a model sentence, or he/she had to translate two model sentences. In each of the 11 IAV instances found, there is variation between an overtly marked plural form and a covertly marked plural form.

For the noun *Baum* ‘tree’, the informants were asked to produce single items for the singular and plural value as well as translate two prepositional phrases in the plural form (cf. 1a and 1b). In four cases covering all of the surveyed dialect zones, the informants produced a single item with overt plural marking (in three cases an additive plural of the type *bāma* ‘trees’ and one [North Bavarian] case of a modificatory umlaut plural *baim*). The noun in the prepositional NP, on the other hand, shows no overt plural marking in any of the cases, with the number information being evident only in the surrounding NP (with zero marking on the noun). Similarly, for model phrase (2) there is a single case of IAV in the East Fran-

conian dialect of Pfofeld (owing to the informant volunteering the single form; it was not part of the questionnaire). The informant produced an overt plural form by adding a nasal suffix for the single item (sg. *benk^h* – pl. *benŋŋ* ‘bench’), while the accusative plural form exhibits no overt plural marking on the noun itself (*hem di aldn benŋ in da šdum*).

- (1) a. *auf die Bäume*
 LOC the.ACC.PL tree-PL
 onto the.ACC.PL tree-PL
 ‘onto the trees’
- b. *an den Bäumen*
 LOC the.DAT.PL tree-PL-DAT.PL
 on the.DAT.PL tree-PL-DAT.PL
 ‘on the trees’
- (2) *Sie haben noch die alten*
 3PL.NOM have-PRS.3PL still the.ACC.PL old-ACC.PL
 they have-PRS.3PL still the.ACC.PL old-ACC.PL
Bänke in der Stube
 bench-PL LOC the.DAT.SG room[DAT.SG]
 bench-PL in the.DAT.SG room[DAT.SG]
 ‘They still have the old benches in the living room.’

With the informants being asked to produce single items as well as model sentences, the former being marked with nominative plural and the latter in the oblique case, the variants (1) and (2) do not provide an ideal basis of comparison (particularly in view of the few examples of IAV). There is another set of model sentences including the noun ‘day’ (3), yielding evidence of variation of covert vs. overt plural marking in the Bavarian part of our study area. In both sentences, the NP containing the head noun *Tage* ‘days’ is marked in nominative plural.¹⁵ While (3a) includes the numeral *sieben* ‘seven’, (3b) includes an adjective with the sense *lauter* ‘many’. In six of the local dialects surveyed, there is variation in the plural marking of the noun: While the noun ‘days’ in combination with the numeral shows no overt plural marking, the informants produced a plural form with umlaut marking or at least accepted the umlaut form suggested by

¹⁵ In addition, the nominative NP in (3a) is not in the subject position, therefore not agreeing with any verb (cf. Section 4.3 on this issue).

the explorer (cf. the snippet in Figure 8).¹⁶ This evidence of IAV regarding ‘days’, albeit scarce, suggests that marked vs. non-marked plural forms are related to the possible ambiguity of morphosyntactic context, with the numeral in (3a) disambiguating, the surrounding NP and in (3b) by contrast not containing sufficient, i.e. unambiguous, information on the number value.¹⁷

- (3) a. *Eine Woche hat sieben Tage.*
 a-NOM.SG week[NOM.SG] have-PRS.3SG seven day-PL
 ‘A week has seven days.’
- b. *Das sind lauter heiÙe Tage gewesen.*
 DEM be.PRS.3PL many hot-NOM.PL
 those be.PRS.3PL many hot-NOM.PL
 Tage gewesen.
 day-PL PTCP-be-PTCP
 ‘Those were many hot days.’

In order to validate these findings with more data points, and as all of the IAV instances concerning ‘days’ stem from the Central Bavarian part of the dialect area (and to a lesser degree from the transition zone to North Bavarian), I edited and evaluated the raw data of the relevant BSA-questions of the Lower Bavarian sub-project (SNiB). While there is no distinct areal distribution, there are three diverging patterns of plural marking in the 206 surveyed locations: (a) zero plural in both morphosyntactic contexts (48%), (b) umlaut plural in both contexts (<3%), or (c) the informant producing (or at least accepting) umlaut plural for model sentence (3b), but not (3a) (<42%). Additionally, some informants produced (or at least accepted) both zero and umlaut plurals in both model sentences (7%).

7. "Eine Woche hat <u>sieben Tage</u> "	290.07 <i>sîm dâg</i> <i>sug. dâg abgedehnt</i>
8. "Das sind <u>lauter heiÙe Tage</u> gewesen" (Umlaut)	290.08 <i>lâuta hoxe dâg</i> <i>sug. dâg</i>

Figure 8: IAV regarding the plural form of *Tage* ‘days’ in the local dialect of Zwiesel (SNiB) (transition zone between North and Central Bavarian).

¹⁶ Note that the informant in Zwiesel (Central Bavarian) refused the overtly marked plural form for the NP with the numeral.

¹⁷ Many thanks to Christina Machnyk (Passau) for pointing this out and putting me on this track.

In sum, the instances of IAV in this subsection point toward a systematic use of overt vs. covert plural marking depending on the potential of disambiguation of the morphosyntactic context, with the noun simultaneously belonging to two declension classes (cf. Rowley 1997, 168–169). Both plural forms, zero and umlaut plural, are existing variants in our study area (cf. Schmeller 1821: §797, and 1872–1877, 1: 239, 591; Rowley 1997: 148). By analogy to Rabanus' (2010: 805) wording of “vertical reinterpretations”, the instances of IAV found are not vertical (i.e. stylistic), but functional reinterpretations. With only these few cases found in our data, it remains to be seen whether our observations on varying forms depending on morphosyntactic context can be generalised and which nouns aside from the ones mentioned are possibly involved.¹⁸ For at least another class of nouns, systematic variation of this sort can be found in the data, as the following section will show: MHG weak feminine nouns.

5.2 Optional plural marking

For MHG weak feminine nouns, there have been several accounts of so-called optional plural marking in Southern North Bavarian and Central Bavarian dialects (cf. e.g., Rowley 1997: 158–163; Steininger 1994: 124). With the singular form being marked by the nasal suffix of the plural form (e.g. *glokŋ* ‘bell’, *sōŋ* ‘sole’, cf. Section 4.1), the plural form regularly exhibits no overt plural marking in East Franconian and Bavarian dialects (i.e. zero plural). For some of those feminine nouns with a nasal suffix in the singular form, however, there is evidence of additive plural formation in the Bavarian part of our study area, e.g. sg. *k^heatfŋ* – pl. *k^heatfŋα* ‘candle’ (Central Bavarian Waldhof), sg. *k^hēn* – pl. *k^hēnα* ‘chain’ (North Bavarian Kallmünz). While these double-suffixations of a nasal suffix followed by a suffix *-α* in some cases constitute the regular plural form (see also Wildfeuer 2001: 148), the additive form can occur optionally if the morphosyntactic context does not disambiguate the plural information. In these cases, “communication requirements influence morphology” (“Kommunikationserfordernisse [nehmen] auf die Morphologie Einfluss”, Steininger 1994, 124, my translation; see also Kollmer 1987: 299; Rowley 1997: 159). In the BSA-questionnaire, the feminine nouns *Glocke* ‘bell’ and *Sohle* ‘sole’ were respectively sampled in two model sentences (4) and as a single plural form and a model sentence (5).

¹⁸ Rowley (1997: 168), for instance, also mentions *Ziege* ‘goat’ besides *Baum* ‘tree’ for two East Franconian dialects.

- (4) a. *Wir brauchen neue Glocken.*
 1PL.NOM need-PRS.1PL new-ACC.PL bells-PL
 we need-PRS.1PL new-ACC.PL bells-PL
 ‘We are in need of new bells.’
- b. *Man tut mit allen Glocken läuten.*
 INDF.SG do-PRS.3SG INS all-PL-DAT.PL
 INDF.SG do-PRS.3SG with all-PL-DAT.PL
Glocken läuten.
 bells-PL ring-INF
 ‘They are ringing all the bells.’
- (5) *Beide Sohlen sind hin.*
 both-NOM.PL sole-PL be.PRS.3PL shot
 ‘Both shoe soles are shot.’

In our data, there are four instances of IAV for ‘bell’ and one for ‘sole’, each of them varying between an unmarked and a double-suffixed plural form and occurring in Central Bavarian local dialects or in the North and Central Bavarian transition zone. Figure 9 illustrates the areal distribution of the respective plural marking strategies for the two morphosyntactic contexts in (4) in the study areas of SNOB

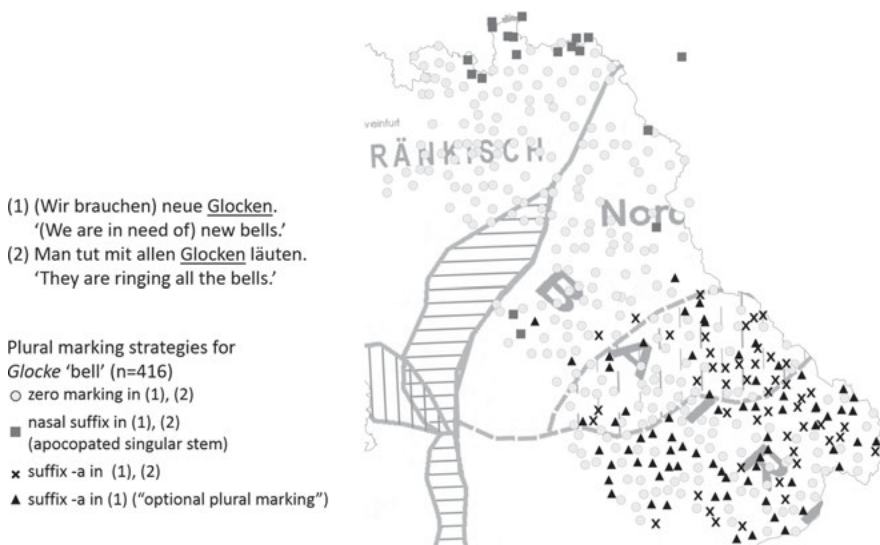


Figure 9: Map of plural forms for *Glocke* ‘bell’ in two different morphosyntactic context in the SNOB and SNiB data.

and SNiB, covering all of our surveyed dialects and thereby confirming the scope of the occasional mentions of optional plural markings in dialect grammars.

According to Steininger (1994) and Rowley (1997), optional plural marking is more frequent in the object position, as there is no agreement between verb and noun, and the supplemental plural marker disambiguates the number information. The single instance of IAV for the model sentence (5) in Bernhardswald (North-Central Bavarian) and the informant's translation in (6) provide an interesting challenge to this hypothesis. In both (6a) and (6b), there is agreement between the subject-NP 'the soles' and the plural verb, but only in the sentence (6c) containing the numeral the overt (optional) plural marking is missing.

- (6) a. *sōlna*
sole-PL
'soles'
- b. *d=sōlna* *san* *hī*
the.NOM.PL=sole-PL be.PRS.3PL shot
'The shoe soles are shot.'
- c. *d=sōln* *san* *al* *dswou* *hī*
the.NOM.PL=sole[PL] be.PRS.3PL all[PL] two shot
'Both shoe soles are shot.'

In this instance of IAV and in light of the variation of overt and covert plural marking for *Tag* 'day' in model sentences (3), it has been the distinct semantics of a numeral vs. the morphosyntactic context without a numeral that evoked optional vs. zero plural marking. While we are in need of fresh data in order to show which morphosyntactic factors can disambiguate the number information, our data suggest that the agreement between verb and noun plays a less significant role than it does in standard NHG. This, in turn, would set apart the Bavarian inflectional system from the standard NHG agreement system.

6 Conclusion: How to model intra-individual variation in inflectional morphology?

The dialect data presented in this study stem from a research project in traditional dialectology. Despite its research design of eliciting the variety of base dialect, there are various instances of IAV to be found in the data material. In this study, IAV in the domain of inflectional morphology relates to different linguistic levels: phonology and phonetics, syntax, and communication requirements

(i.e. a lack of ambiguity). The cases discussed in Section 4.1 are specific to dialects as a variety and, in one form or another, are to be expected in dialect morphology as a whole. It is the task of morphological research in different dialect areas to elucidate the underlying principles of changes in declension (e.g. gender or semantics) or the horizontal origin of “vertical reinterpretations”.

As Section 4.2 showed, IAV as a concept can help us to improve our understanding of morphophonology, in this case of a dialect-specific plural marking strategy: lenis/fortis contrasts in North and Central Bavarian. Taking into account phonetic variation presents a challenge to the classification of morphophonological markers, but it provides a more detailed account of the reality of language usage, especially in light of phonological change in process. Here, we are in need of fresh data on the systematic variability in nominal inflection morphology and this specific plural marking strategy. The instances of IAV found in the data only constitute a starting point. This is in line with Schallert and Dammel’s (2019: 6) approach of asking “how independent morphology actually is [. . .] or, conversely, how the interaction between morphology and other modules of the grammar functions [. . .]”.

With the notion of optional plural marking in the Bavarian inflectional system and the grammaticalised principle of disambiguating inflectional information if necessary (cf. Rowley 1997: 171), the types of IAV and variation discussed put our concept of plural marking and modular models of inflection morphology to the test. The formal strategies of coding the plural information are attributed to inflection morphology; however, plural coding as a whole has to be located at the interface of morphology, syntax, and context. Nevertheless, there is still a research gap on how much and what kind of contextual information is necessary in order to make inflectional information more or less ambiguous. This brings us back to the methodological issues of choosing elicitation techniques and linguistic tasks (or, if necessary, inventing them) in order to determine these factors, and to identify nouns or classes of nouns relevant to optional plural marking strategies. In order to answer these questions, more data on Bavarian base dialect is necessary, as optional plural marking is a feature of that variety.

Abbreviations

ACC	accusative
BSA	<i>Bayerischer Sprachatlas</i> (Bavarian Linguistic Atlas), referring to the research project and its sub-projects:
SBS	<i>Sprachatlas von Bayerisch-Schwaben</i> (Linguistic Atlas of Swabia)
SMF	<i>Sprachatlas von Mittelfranken</i> (Linguistic Atlas of Middle Franconia)
SNiB	<i>Sprachatlas von Niederbayern</i> (Linguistic Atlas of Lower Bavaria)

SNOB	<i>Sprachatlas von Nordostbayern</i> (Linguistic Atlas of Northeastern Bavaria)
SOB	<i>Sprachatlas von Oberbayern</i> (Linguistic Atlas of Upper Bavaria)
SUF	<i>Sprachatlas von Unterfranken</i> (Linguistic Atlas of Lower Franconia)
DEM	demonstrative
INDF	indefinite
INF	infinitive
INS	instrumental
LOC	locative
MHG	Middle High German
NHG	New High German
NOM	nominative
NP	noun phrase
PTCP	participle
PL	plural
PRS	present
SG	singular

References

- Auer, Peter. 2010. Der Grunddialekt als Konstrukt: Wie Gewährspersonen und Erheber in der direkten Befragung die Daten der Atlasdialektologie konstituieren. In Dominique Huck & Thiresia Choremi (eds.), *Parole(s) et langue(s), espaces et temps – Mélanges offerts à Arlette Bothorel-Witz*, 23–36. Strasbourg: Université de Strasbourg.
- Bülow, Lars, Kees de Bot & Nanna Hilton. 2017. Zum Nutzen der Complex Dynamic Systems Theory (CDST) für die Erforschung von Sprachvariation und Sprachwandel. In Helen Christen, Peter Gilles & Christoph Purschke (eds.), *Räume, Grenzen, Übergänge: Akten des 5. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD)* (Zeitschrift für Dialektologie und Linguistik, Beiheft 171), 45–69. Stuttgart: Franz Steiner.
- Bülow, Lars, Hannes Scheutz & Dominik Wallner. 2019. Variation and Change of Plural Verbs in Salzburg's base dialects. In Antje Dammel & Oliver Schallert (eds.), *Morphological variation: Theoretical and empirical perspectives* (Studies in Language Companion Series 207), 95–134. Amsterdam & Philadelphia: John Benjamins.
- Chambers, Jack K. & Peter Trudgill. 2009 [1998]. *Dialectology*, 2nd edn. New York: Cambridge University Press.
- Eroms, Hans-Werner. 2006. *Sprachatlas von Niederbayern. Volume 1. Einführung mit Syntaxauswertung*. Heidelberg: Winter.
- Fischer, Hanna. 2019. Dialektgrammatiken als Datenquelle? Zum Wert der dialektgrammatischen Literatur für dialektvergleichende Studien. In Sebastian Kürschner, Mechthild Habermann & Peter Otto Müller (eds.), *Methodik moderner Dialektforschung. Erhebung, Aufbereitung und Auswertung von Daten am Beispiel des Oberdeutschen* (Germanistische Linguistik 241–243), 309–333. Hildesheim: Olms.
- Harnisch, Rüdiger. 1994. Allomorphische Variation und kognitive Kosten. Evidenz aus dem Ortsdialekt von Ludwigstadt in Oberfranken. In Wolfgang Viereck (ed.), *Verhandlungen des*

- Internationalen Dialektologenkongresses Bamberg 29.7.–4.8. 1990. Volume 3: Regional-sprachliche Variation, Umgangs- und Standardsprachen* (Zeitschrift für Dialektologie und Linguistik, Beiheft 76), 283–296. Stuttgart: Steiner
- Harnisch, Rüdiger. 1995. Fortis und Lenis im Bairischen – naturaliter. In Rüdiger Harnisch, Ludwig M. Eichinger & Anthony Rowley (eds.), „. . . im Gefüge der Sprachen“. *Studien zu System und Soziologie der Dialekte. Festschrift für Robert Hinderling zum 60. Geburtstag* (Zeitschrift für Dialektologie und Linguistik, Beiheft 90), 69–93. Stuttgart: Steiner.
- Kleber, Felicitas. 2017. Complementary length in vowel–consonant sequences: Acoustic and perceptual evidence for a sound change in progress in Bavarian German. *Journal of the International Phonetic Association* 2017. 1–22.
- Klepsch, Alfred. 2003. *Sprachatlas von Mittelfranken. Volume 1. Einführung*. München: Winter.
- Klingler, Nicola, Sylvia Moosmüller & Hannes Scheutz. 2017. Vowel and Consonant Sequences in three Bavarian Dialects of Austria. *Proceedings Interspeech* 2017. 2983–2987.
- Kollmer, Michael. 1987. *Die schöne Waldlersprach. Von Wegscheid bis Waldmünchen, von Passau bis Regensburg. Volume 1. Lautliche und grammatische Beschreibung der Waldlersprache (mit Berücksichtigung der Sprache des Flachlandes rechts der Donau)*. Prackenbach: Kollmer.
- König, Werner. 1997. *Sprachatlas von Bayerisch-Schwaben. Volume 1. Einführung*. Heidelberg: Winter.
- König, Werner. 2010. Investigating language in space: methods and empirical standards. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An international handbook of linguistic variation* (Handbücher zur Sprach- und Kommunikationswissenschaft 30.1), 567–592. Berlin/New York: de Gruyter.
- Köpcke, Klaus-Michael. 1994. Zur Rolle von Schemata bei der Pluralbildung monosyllabischer Maskulina. In Klaus-Michael Köpcke (ed.), *Funktionale Untersuchungen zur deutschen Nominal- und Verbalmorphologie* (Linguistische Arbeiten 319), 81–95. Tübingen: Niemeyer.
- Kranzmayer, Eberhard. 1956. *Historische Lautgeographie des gesamtbairischen Dialektraumes. Mit 27 Laut- und 4 Hilfskarten in besonderer Mappe*. Wien: Böhlau.
- Kürschner, Sebastian. 2008. Semantische Konditionierung in der Pluralallomorphie deutscher Dialekte. In Franz Patocka & Guido Seiler (eds.), *Dialektale Morphologie, dialektale Syntax*. Beiträge zum 2. Kongress der Internationalen Gesellschaft für Dialektologie des Deutschen, Wien, 20.–23. September 2006, 141–156. Wien: Präsens.
- Kürschner, Sebastian & Damaris Nübling. 2011. The interaction of gender and declension in Germanic languages. *Folia linguistica* 45(2). 355–388.
- Lameli, Alfred. 2010. Linguistic atlases – traditional and modern. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An international handbook of linguistic variation* (Handbücher zur Sprach- und Kommunikationswissenschaft 30.1), 494–511. Berlin/New York: de Gruyter.
- Lameli, Alfred. 2013. *Strukturen im Sprachraum. Analysen zur arealtypologischen Komplexität der Dialekte in Deutschland* (Linguistik – Impulse & Tendenzen 54). Berlin/Boston: de Gruyter.
- Mang, Alexander. 2004. *Sprachatlas von Mittelfranken. Volume 6. Sprachregion von Nürnberg*. Heidelberg: Winter.
- Mayerthaler, Willi. 1981. *Morphologische Natürlichkeit* (Linguistische Forschungen 28). Wiesbaden: Athenaion.

- Moosmüller, Sylvia & Julia Brandstätter. 2014. Phonotactic information in the temporal organization of Standard Austrian German and the Viennese dialect. *Language Sciences* 46. 84–95.
- Munke, Horst Haider. 2015. Der Bayerische Sprachatlas (BSA). In Roland Kehrein, Alfred Lameli & Stefan Rabanus (eds.), *Regionale Variation des Deutschen. Projekte und Perspektiven*, 1–27. Berlin/Boston: de Gruyter.
- Nickel, Grit & Sebastian Kürschner. 2019. Flexionsmorphologie des Substantivs im Ostfränkischen und Nordbairischen. Zur ‚Reaktivierung‘ der Daten aus den Projekten des Bayerischen Sprachatlas für neue Fragestellungen. In Sebastian Kürschner, Mechthild Habermann & Peter Otto Müller (eds.), *Methodik moderner Dialektforschung. Erhebung, Aufbereitung und Auswertung von Daten am Beispiel des Oberdeutschen* (Germanistische Linguistik 241–243), 365–396. Hildesheim: Olms.
- Rabanus, Stefan. 2010. Areal Variation in Morphology. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An international handbook of linguistic variation* (Handbücher zur Sprach- und Kommunikationswissenschaft 30.1), 804–821. Berlin/New York: de Gruyter.
- Rein, Kurt. 2005. *Sprachregion München. Ergänzungsband zum Sprachatlas von Oberbayern*. Heidelberg: Winter.
- Rowley, Anthony. 1997. *Morphologische Systeme der nordostbayerischen Mundarten in ihrer sprachgeographischen Verflechtung* (Zeitschrift für Dialektologie und Linguistik, Beihefter 93). Stuttgart: Steiner.
- Schallert, Oliver & Antje Dammel. 2019. Introduction: On the Benefits of Analyzing Morphological Variation by Linking Theory and Empirical Evidence. In Antje Dammel & Oliver Schallert (eds.), *Morphological variation: Theoretical and empirical perspectives* (Studies in Language Companion Series 207), 1–25. Amsterdam & Philadelphia: John Benjamins.
- Schirmunski, Viktor. 1962. *Deutsche Mundartkunde. Vergleichende Laut- und Formenlehre der deutschen Mundarten*. Berlin: Akademie-Verlag.
- Schmeller, Johann Andreas. 1821. *Die Mundarten Bayerns grammatisch dargestellt. Beygegeben ist eine Sammlung von Mundart-Proben, d.i. kleinen Erzählungen, Gesprächen, Sing-Stücken, figürlichen Redensarten u. dergl. in den verschiedenen Dialekten des Königreichs, nebst einem Kärtchen zur geographischen Übersicht dieser Dialekte*. München: Thiene-mann.
- Schmeller, Johann Andreas & Georg Carl Frommann. 1872–1877. *Bayerisches Wörterbuch. Sammlung von Wörtern und Ausdrücken, die in den lebenden Mundarten sowohl, als in der älteren und ältesten Provincial-Litteratur des Königreichs Bayern, besonders seiner ältern Lande, vorkommen, und in der heutigen allgemein-deutschen Schriftsprache entweder gar nicht, oder nicht in denselben Bedeutungen üblich sind. Zweite, mit des Verfassers Nachträgen vermehrte Ausgabe, bearbeitet von G. Karl Frommann*. München: Oldenbourg.
- Schmidt, Jürgen Erich, Joachim Herrgen & Roland Kehrein (eds.). 2008 ff. *Regionalsprache. de (REDE). Forschungsplattform zu den modernen Regionalsprachen des Deutschen*. Edited by Dennis Bock, Brigitte Ganswindt, Heiko Girnth, Simon Kasper, Roland Kehrein, Alfred Lameli, Slawomir Messner, Christoph Purschke & Anna Wolańska. Marburg: Forschungszentrum Deutscher Sprachatlas. <https://www.regionalsprache.de> (accessed 16 August 2020).
- Schrambke, Renate. 2010. Language and Space: Traditional dialect geography. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An international handbook of linguistic*

- variation* (Handbücher zur Sprach- und Kommunikationswissenschaft 30.1), 87–107. Berlin/New York: de Gruyter.
- Seidelmann, Erich. 2002. Kürzungs- und Dehnungstendenzen im Mittelbairischen und die Pfalzische Regel. In Alfred Wildfeuer & Ludwig Zehetner (eds.), *Bairisch in Bayern, Österreich, Tschechien. Michael-Kollmer-Gedächtnis-Symposium 2002* (Regensburger Dialektforum 1), 99–105. Regensburg: edition vulpes.
- Seidelmann, Erich. 2013. Vokaldauer, Konsonantenschwächung und die Sprachrhythmik des Mittelbairischen. In Rüdiger Harnisch (eds.), *Strömungen in der Entwicklung der Dialekte und ihrer Erforschung. Beiträge zur 11. Bayerisch-Österreichischen Dialektologentagung in Passau September 2010* (Regensburger Dialektforum 19), 55–64. Regensburg: edition vulpes.
- Seiler, Guido. 2008. Nicht-konkatenative Morphologie: Eine Forschungsaufgabe für die Dialektologie. In Franz Patocka & Guido Seiler (eds.), *Dialektale Morphologie, dialektale Syntax. Beiträge zum 2. Kongress der Internationalen Gesellschaft für Dialektologie des Deutschen*, Wien, 20.–23. September 2006, 181–197. Wien: Praesens.
- Seiler, Guido. 2009. Sound change or analogy? Monosyllabic lengthening in German and some of its consequences. *Journal of Comparative Germanic Linguistics* 12. 229–272.
- Seiler, Guido. 2010. Investigating Language in Space: Questionnaire and Interview. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An international handbook of linguistic variation* (Handbücher zur Sprach- und Kommunikationswissenschaft 30.1), 512–527. Berlin/New York: de Gruyter.
- Steininger, Reinhold. 1994. *Beiträge zu einer Grammatik des Bairischen. Auf der Grundlage von kommentierten Texten aus Oberneureutherwaid im unteren Bayerischen Wald* (Zeitschrift für Dialektologie und Linguistik, Beihefte 85). Stuttgart: Steiner.
- Thun, Harald. 2005. Variation im Gespräch zwischen Informant und Explorator. In Alexandra N. Lenz & Klaus J. Mattheier (eds.), *Varietäten – Theorien und Empirie*, 97–126. Frankfurt am Main: Peter Lang.
- Wiesinger, Peter. 1983. Die Einteilung der deutschen Dialekte. In Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert Ernst Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung. Zweiter Halbband* (Handbücher zur Sprach- und Kommunikationswissenschaft. 1.2), 807–900. Berlin/New York: de Gruyter.
- Wildfeuer, Alfred. 2001. *Der Dialekt im Kirchdorfer Land. Stand und Tendenzen eines zentral-mittelbairischen Subdialekts* (Regensburger Beiträge zur deutschen Sprach- und Literaturwissenschaft 76). Frankfurt am Main: Peter Lang.
- Zeisberger, Andrea. 2003. *Sprachatlas von Bayerisch-Schwaben. Volume 9.1. Formengraphie II: Substantive, Artikel*. Heidelberg: Winter.

Sophie Ellsäßer and Oliver Schallert

Intra-individual Variation in Morphosyntax: A Constraint-based Perspective

Abstract: Using a large corpus of transcribed audio-recordings, we analyse patterns of intra-individual variation (IAV) in Upper-German dialects (mostly High Alemannic, Swabian, and East Franconian). We take a closer look at two grammatical domains that are particularly informative with regard to the syntax-morphology interface: (i) the system of case-marking distinctions; (ii) the substitute infinitive construction (i.e. IPP, “infinitivus pro participio”) plus word order variation in the verbal complex. These phenomena suggest a form of non-conditioned IAV, meaning that no obvious (grammatical) conditioning factors can be identified. Nevertheless, the variants are not chosen arbitrarily: there are co-occurrence restrictions of certain variants, and variability always draws from the typological space of attested grammatical systems. In this chapter we take a constraint-based perspective on this type of IAV and show its high degree of variability can be modelled using Stochastic Optimality Theory (StOT). In doing so, we address the special properties of data from spoken language corpora, both with regard to theoretical modelling and the possibilities of an IAV-analysis.

Keywords: syntax-morphology interface, corpus data, (Stochastic) Optimality Theory (StOT), infinitive constructions, case-marking, non-conditioned intra-individual variation, Upper German dialects

1 Introduction

Using a large corpus of transcribed audio-recordings compiled by Ruoff (1984, 1985), we analyse patterns of intra-individual variation (IAV) in Upper-German dialects (mostly High Alemannic, Swabian, and East Franconian). We take a closer look at two grammatical domains that are particularly informative with regard to the syntax-morphology interface: (i) the system of case distinctions and (ii) the substitute infinitive construction (i.e. IPP, “infinitivus pro participio”) and

Acknowledgements: We are much indebted to Simone Pfenninger, Alexander Werth, and an anonymous reviewer for detailed comments and constructive criticism on a previous version of this article. Some of this feedback is directly addressed throughout the text, but we want to stress that also the overall appearance (and accessibility) of our article has benefited a lot from their help.

<https://doi.org/10.1515/9783110743036-007>

accompanying word order variation in the verbal complex (see Schmid 2005 for the basic facts).

Our findings support the following claims:

- While intra-individual variation¹ is constrained by the general typological makeup of the varieties in question (e.g. possible patterns of case-syncretism), some aspects of this variability is not governed by grammatical factors (i.e. explicable in terms of morphology, syntax, etc.). This means we are dealing with cases of non-conditioned intra-individual variation in the sense of Ulbrich and Werth (in this volume).
- There is no direct relation between the degree of variability on the individual level and variation patterns found on the group level. While some speakers are more flexible than others, their repertoires always form a proper subset of the variants available at a certain location. This finding bears on the question of how “ergodic” individual variability is (cf. Molenaar 2008; Bülow et al. 2019). What is more, co-occurrence restrictions can be observed between different variants (see Cornips 2009: 210–211 on verbal complexes in Dutch regiolects), which are highly relevant for identifying possible grammatical systems or quantifying different grammatical patterns (Bresnan et al. 2007).
- Intra-individual variability also has an areal dimension (see e.g. Seiler 2004 on Swiss German dialects). For instance, our analysis of syncretism patterns with the masculine definite article showed that variability is encountered in a transition zone between a south-western area with the pattern nominative/accusative vs. dative (NA/D) and a central area with three distinct cases (N/A/D) – the genitive having disappeared in almost all German dialects. Speakers in this intermediate area allow both patterns, yet with a diminishing degree of NA/D towards the central region.

From a theoretical perspective, we show how the variation patterns observed in our corpus analysis can be captured by constraint-based models like (Stochastic) Optimality Theory (StOT) (Boersma and Hayes 2001; Smolensky and Legendre 2006a, 2006b), assuming a model-theoretic ontology of grammatical structures (Pullum and Scholz 2001). In particular, we assume two general types of constraints, i.e. inviolable (“hard”) and violable (“soft”) ones (Sorace and Keller 2005), the latter type functioning as an interface to more domain-general, functional factors that influence grammatical patterns. These come in different guises (e.g. processing costs, frequency effects, etc.) but most notably include “interac-

1 A short terminological remark: in this chapter, we use the terms “variation” and “variability” interchangeably, just for the sake of stylistic variation.

tional” aspects, i.e. the interface between an individual’s verbal behaviour and patterns observable on the level of speaker groups (extra-individual variation). Against this background, usage-based factors can be taken into account and given a proper place in the architecture without one’s being forced to make the assumption that structural variation between languages (or varieties within a language) emerges from general cognitive principles (cf. Ulbrich and Werth in this volume) plus their specific semantic or discourse function. In its strict form, we regard this assumption, which seems to be popular in *Construction Grammar*, as problematic.² It has not been demonstrated for a critical number of typological features how they can be explained without assuming language-specific resources and are thus “derivative” in this sense. This applies in particular to the grammatical phenomena addressed in this chapter (patterns of case syncretism, word order variability in the right sentence periphery).

This chapter is structured as follows: in Section 2, we review two pioneering studies dealing with intra-individual variation in grammar, focusing on methodological insights that can be drawn from them. Then we discuss the main results of our corpus study and address some of the advantages, but also limitations, of this empirical base (Section 3). Subsequently, we deal with the broader question of how non-conditioned intra-individual variation can be successfully modelled in a constraint-based fashion (Section 4). The last section summarises our findings and sketches some open questions.

2 Intra-individual variation: Two pioneering studies

Traditionally, the interest in intra-individual variation comes from sociolinguistics, where it has been realised for some time that speaker groups are a relevant descriptive category for investigating grammatical variation. In particular, differences between age-groups proved to be highly significant when it comes to detecting language change from a short-term perspective. In the following, we will discuss two studies on IAV from a dialectological perspective that turned out to be, in methodological terms, very important for our own approach. We cannot do justice to important work on this topic in all its facets, e.g. in second language acquisition or sociolinguistics (see the introduction of this volume for a

² We take Goldberg’s programmatic article on the tenets of CxG as an example (Goldberg 2003: 219): “Tenet 5. Cross-linguistic generalisations are explained by appeal to general cognitive constraints together with the functions of the constructions involved.”

more thorough overview). However, we will address some connections between the theory of grammar and sociolinguistics in the final section of this chapter.

A pioneering piece of work on IAV and its relation to language change is Wolfensberger (1967). On the empirical basis of sound recordings, the “speed” of dialectal change in a single community – namely the town of Stäfa at Lake Zurich – is investigated using different speaker groups (cross-classification of age groups and mobility groups); i.e. this study can be regarded with some justification as an “apparent time” study of language change (Labov 1994: 45–46) *avant la lettre*. According to Wolfensberger (1967: 4), this study is to be understood as a “sprachgeologische Sondierung” which examines “Ausschnitte aus der Sprache verschiedener Bevölkerungsschichten an einem einzigen Ort”.³ What makes this investigation so innovative is that Wolfensberger also looks for co-occurrences of the forms used by individual speakers and aims at reconstructing different grammatical systems on this basis (see Wolfensberger 1967: 130–138). It will therefore be presented here in some detail.

The empirical base comprises a total of 72 sound recordings (including protocols) of speakers that were selected on the basis of a cross-classification of the trichotomic variables “age” and “residence” (see Table 1 and Wolfensberger 1967: 18–19). The variable “age” is divided into the levels (a) older generation (born before 1917); (b) middle generation (born 1917–1941); (c) younger generation (born from 1942 onwards). The variable “residence” has the following characteristics: (a’) *old-established* (both parents and the informant grew up locally); (b’) *established* (informant and at least one parent grew up locally); (c’) *immigrant* (informant lives locally, having moved to the area). The total number of informants results from the fact that each of the 9 possible complex variables (e.g. a + b’) comprises 8 persons.

Table 1: Variables underlying the informant choice of Wolfensberger (1967).

Age	older generation	middle generation	younger generation
Residency	old-established	established	immigrant

In Chapter 2 (Wolfensberger 1967: 106–142) several morphosyntactic phenomena are discussed from a short-term diachronic perspective (verbal and nominal inflection, relative clauses, negative concord patterns, etc.). Very innovative and original is the presentation of the respective results in tables whose cells are distributed over

³ English translation: A “linguistic-geological sounding” that examines “excerpts from the language of different population strata at a single location”.

the two parameters “age” and “residence” mentioned above and which illustrate the respective changes very clearly. Let us now look at the results on the verbal complex as an example (cf. Wolfensberger 1967: 138–142). The stimulus sentence in (1) was rendered by the informants with the translation variants in (1a–c). Following Wolfensberger’s scheme of representation, these are listed in Table 2 together with those for the substitute infinitive construction exemplified in (2) below.⁴ For the sake of simplicity, the data from the middle generation in the original representation is skipped (note that “+” stands for alternative/irrelevant variants).

- (1) *bis man mit einer Lernmaschine lesen lernen kann*
 till one with a learn.machine.DAT read learn can.3SG
 ‘until one can learn to read with the aid of a learning machine’
- a. *cha leere läse* (1-2-3) [= ●]
 can.3SG learn read
- b. *cha läse leere* (1-3-2) [= ∴]
 can.3SG read learn
- c. *läse leere cha* (3-2-1) [= ○]
 read learn can.3SG

Table 2: Variant profiles of the informants regarding verbal complexes (adapted from Wolfensberger 1967: 141).

	Older generation								Younger generation							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
A																
(1)	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○
(2)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
B																
(1)	●	●	●	●	●	●	●	●	○	○	●	○	○	●	○	○
(2)	●	○	●	●	●	○	●	●	●	●	●	●	+	○	+	○
C																
(1)	○	○	○	●	○	○	●	○	○	○	●	○	○	○	○	○
(2)	●	●	●	●	●	●	●	●	●	●	●	●	+	●	●	●

⁴ Throughout this chapter, we follow the convention of symbolising the hierarchical order of the verbs in the verbal complex by indices, whereby the verb with the highest index is the most deeply embedded one. The abbreviations used in the table are as follows: A = old-established, B = established, C = immigrant. The numbers refer to the respective test sentences mentioned in the text.

It can be seen that the older and more stationary speakers (i.e. groups A, B) exclusively or predominantly gave the variant 1-2-3 (symbol “●”), while in group C the variant 3-2-1 dominates (symbol “○”); this is also very clearly the case with the younger generation, regardless of the local stability. Particularly revealing are the results of the IPP construction, which were elicited with the sentence in (2). Since the preterite has largely disappeared in Upper German dialects, the translations of the informants feature the two variants (2a) and (2b), which are listed in the second line for each age group in Table 2.

- (2) *Musste das jetzt unbedingt sein?*
 must.PST that now necessarily be
 ‘Was this absolutely necessary?’
- a. *Hät das sy müse?* (2-1) [= ○]
 has.3SG that be must.IPP
- b. *Hät das müese sy?* (1-2) [= ●]
 has.3SG that must.IPP be

Here, there are only 4 (!) mentions of the sequence 2-1 (symbol “○”) (corresponding to Standard German), i.e. the variant of the old local dialect seems to be extremely stable. Wolfensberger (1967: 142) sees this astonishing constancy as an effect of the lack of the preterite, in that the dialectal form does not face any competition.

An example of the kind of co-occurrence analysis that Wolfensberger performs can be seen with regard to changes in the gender-marking of the numerals *zwei* ‘two’ and *drei* ‘three’, which is still preserved in the Stäfa dialect (e.g. *zwee Mane* ‘two men’, *zwoo Fraue* ‘two women’, *zwäi Chind* ‘two children’). He reconstructs individual “grammars” for single speakers (which then can be counted) according to the following aspects (see Wolfensberger 1967: 133):

- The old system with three distinctions completely preserved.
- New, individual system for single speakers (e.g. *zwee Mane/Fraue* but *zwäi Chind*)
- Partially converging systems (“systemicity from case to case”) with lexeme-specific deviations.

In a similar vein, but in a more modern setting, Cornips (2009) conducted a study on verbal complex phenomena in Dutch. Her empirical basis consists of a corpus of spontaneous speech data from 67 male speakers with a comparable social background. In addition, acceptability ratings of 370 speakers were collected in the context of the *Syntactische Atlas van de Nederlandse Dialecten* [SAND] – “Syntactic Atlas of Dutch Dialects”, featuring different syntagm types that depend on

the syntactic category of the constituent verbs, e.g. combinations of (finite) modal verbs + lexical verb ({Mod, V}) as in (3), or combinations of finite aspectual verb or auxiliary verb plus lexical verb ({Asp, V}, {Aux, V}).

(3) 3: Jansen

- a. *dus die een beetje lezen kunnen*
 thus those a bit read.INF can.3PL
 ‘thus they are able to read a bit’
- b. *die dat [...] redelijk kunnen opbrengen*
 those that reasonably can.3PL yield.INF
 ‘those who can reasonably yield that’
 (Cornips 2009: 206, ex. (2); translation added)

In quantitative terms, the following patterns emerge (see Table 3; the numbers represent speakers): With {Aux, V}, the proportion of 2-1 serialisations is highest; conversely, with other syntagm types 1-2 is very dominant. However, this distribution does not yield homogenous groups of speakers. While some of them only produce one serialisation with both syntagm types, there is also evidence for “switching” speakers.

Table 3: 1-2 vs. 2-1 serialisations in Dutch
 (Cornips 2009: 208–209).

	{Mod/Asp, V}	{Aux, V}
only 1-2	55	1
only 2-1	0	16
1-2 & 2-1	12	50

What is really interesting about Cornips’ work is that she also systematically scans her data for correlations between the different word order types. Following Schallert (2014a), this procedure can be called “decomposition analysis”. A relevant example is shown in Table 3, which can be interpreted in the following way: 2-1 serialisations with {Mod/Asp, V} occur only with those speakers who also have variant 1-2 in their repertoire (but not vice versa). In a similar way, such correlations can be formulated for acceptability data (see Cornips 2009: 217–220). Co-occurrences can be used to identify possible grammatical systems and to quantify them (see also Bresnan et al. 2007 and Seiler 2004). Of course, corpus data such as those we are using do not allow us to make claims about systems that are ruled out on principled grounds (unattested does not necessarily mean impossible), yet in combination with acceptability judgements drawn from

a comparable informant population, such statements are feasible (see Schallert 2014a for such an approach).⁵

With two dichotomous features (*word order*, i.e. 1-2 vs. 2-1; *syntagm type*, i.e. {Mod, V}, {Aux, V}), there are $2^4 = 16$ possible combinations. If these combinations were distributed randomly, it would be expected that each of them (yielding a different grammar) would have about 5 speakers (67/14). In contrast, the above findings indicate that over 90% of the variation is due to three combinations with respect to syntagm types (see Table 4). Findings such as these can also be used directly for theoretical questions such as the base order of the verbal complex in the respective variants (see Cornips 2009: 209–210).

Table 4: Individual feature combinations with 2-part verbal complexes.

No. of grammars	{Aux, V}		{Mod/Asp, V}	
	2-1	1-2	2-1	1-2
40 (= 60%)	✓	✓	*	✓
12 (= 17%)	✓	*	*	✓
10 (= 14%)	✓	✓	✓	✓
not attested	✓	*	✓	*

Current research has addressed the following issues that we will take up in the following section: from a methodological perspective, it is interesting to know that the amount of intra-individual variability depends on the elicitation method. A meta-study on data from the *Syntaktischer Atlas der deutschen Schweiz* [SADS] – “Syntactic Atlas of German-speaking Switzerland” conducted by Glaser et al. (2020) showed that tasks aimed at eliciting acceptability judgments on different variants increased the likelihood of speakers accepting more than one variant, while with translation tasks this amount is smaller (see Glaser et al. 2020: 16–17). Most importantly, the problem of ergodicity (cf. Molenaar 2008) has been discussed. This boils down to the question of the extent to which intra-individual variability corresponds to inter-individual (\approx group-related) variability. In sociolinguistics, it has traditionally been assumed that idiolectal variation always moves within the range that can also be observed between

⁵ A highly relevant question in this connection is whether co-occurrence restrictions, such as the ones we have been discussing so far, represent a case of conditioned variation. This is difficult to decide on principled grounds because there is, as far as we know, no direct grammatical causality triggering this dependence (beyond the fact that the respective variants are licensed), so that the zero hypothesis would be treating them as mere correlations.

speakers (Bell 1984: 151), but more recent studies have come to opposite conclusions (see e.g. Bülow et al. 2019 on verbal morphology in Southern and Central Bavarian).

3 Analysing IAV in a corpus of spoken language

Our empirical study is based on a corpus analysis of natural spoken Upper German dialect data. We will mainly present frequency data on the verbal complex (including the “substitute infinitive” construction) and on case-marking patterns.⁶ The corpus contains transcripts of audio-recordings collected by the *Tübinger Arbeitsstelle ‘Sprache in Südwestdeutschland’* in the period of 1955–1998 (see e.g. Ruoff 1973), which have partly been published in Ruoff (1984) and Ruoff (1985). While the analysis of verbal complex phenomena is based on the data from Vorarlberg and Liechtenstein (Ruoff 1985 and supplementary data; see Schallert 2014a: 135), the analysis of case-marking draws on the data from Baden-Württemberg and Bavarian-Swabia (Ruoff 1984).⁷ The relevant background information on these two partial corpora is given in Table 5. As can be gathered from the column “occurrences”, case phenomena have a much higher overall frequency, so that the differences in size between the two corpora is more than compensated for.

Table 5: Information on the two partial corpora used in the present study.

Phenomenon	Corpus used	No. of transcripts	Tokens	Occurrences
Verbal complex phenomena (see Section 3.1)	Ruoff (1985) plus supplementary material: data from Vorarlberg	290	835,467	1552 (see Schallert 2014a: 220)
Patterns of case syncretism (see Section 3.2)	Ruoff (1984): data from Baden-Württemberg and Bavarian-Swabia	72	114,400	2052 (see Ellsäßer 2020: 146)

⁶ In a strict sense, our investigation is qualitative (as is the case with any kind of corpus study), because we do not investigate any statistical dependencies between independent and dependent variables.

⁷ Ruoff (1985) also includes recordings from Baden-Württemberg. These are, however, not taken into consideration for the analysis because already the data from Ruoff (1984) turned out to be more than extensive enough.

Corpora of spoken language like the one we are using are particularly well-suited for an investigation on IAV because they allow for frequency-based analyses. Especially longer transcripts are likely to feature several variants of a single phenomenon. Thus, the data not only allow us to investigate variation in general (see Fleischer 2019: 655) but also to quantify those variants and differentiate between frequent and less-frequent ones. This constitutes a major advantage over other kinds of sources, in particular grammatical descriptions, that usually do not contain such information. Frequency data also enable us to draw conclusions about preferred and rare variants, even though this information cannot be accessed as directly as in questionnaire-based studies (see Seiler 2005; Fleischer et al. 2012; Glaser 2017).

Another advantage of the Ruoff corpus lies in the particular transcription method that was used (see Ruoff 1973). Apart from certain idiosyncrasies, it is based largely on Standard German orthography, thus making digital processing and analysis easier, while it is still precise enough to capture relevant aspects of (case) morphology.⁸ Thus, the transcripts can be used for large-scale frequency-based analyses with minimal editing. As with all corpus analyses, however, it must be taken into account that the findings on grammatical structures (on syntax as well as on morphology) in this study can only be reconstructed from performance data. Unlike in traditional grammatical descriptions, for example, this is not competence data. Preferred variants thus can only be inferred from (high) frequency. Performance errors (which can certainly give the impression of being IAV) must be accepted and the data source does not allow for negative evidence. Another point that must be mentioned is that the corpus is heterogeneous to a certain extent: the individual transcripts vary in length, quality, and (possibly also) in dialect level (see Ruoff 1973: 130–136 and Ellsäßer 2020: 82–90 for an in-depth discussion). The data are briefly classified by their proximity to dialect or Standard German in the corpus. Yet, the basics of this classification are not made transparent in Ruoff (1973), Ruoff (1984) or Ruoff (1985) and are therefore not necessarily reliable. It can only be stated that it is a corpus that contains mostly dialectal data. However, as with all corpora of spoken language, a certain influence of standard German cannot be ruled out (Ellsäßer 2020: 86–87).

What is, conversely, a further benefit of corpus data for the analysis of IAV is that variation found here is less likely to be caused by influence from other grammatical systems: for dialect grammars, influence from historical reference

8 For a critical discussion of the benefits and disadvantages of the transcription method used in the Ruoff-data see Berchtold and Schallert (2013), Schallert (2014a, b) and Ellsäßer (2020: 77–90).

systems is assumed to be caused by paradigmatic templates (see Schmidt and Herrgen 2011: 90–92; Fischer 2019: 316), and certain tasks in questionnaire-based surveys are suspected to be affected by Standard German orthography (see Glaser 1997: 18). Indeed, a minor influence from other systems cannot be ruled out completely in the corpus data of natural spoken language (caused e.g. by the recording situation), but owing to the absence of a template or trigger it can be assumed to be low in comparison with other data types. Thus, it is plausible to assume that variation found in our data stems from within one grammatical system. Since the respective transcripts are based on recordings of so-called “guided conversations” (*conversations dirigées*) with large monological stretches, they can be safely assumed to represent the grammatical system of exactly one speaker at a certain location. In general, this method has proved to be suitable for the analysis of grammatical phenomena (see Hotzenköcherle 1962: 24), especially for morphology (Seiler 2010: 517). What is more, corpus data allow for identifying relevant structures in a reliable way because other types of grammatical descriptions (sources) often abstract away from this kind of variation by focusing on the group level. Finally, the evidence of varying patterns found in the corpus is embedded in a larger (discourse) context. This offers a great advantage over dialect grammars and questionnaires where paradigms and stimuli are often listed in isolation. Thus, the corpus analysis allows for further (frequency-based) investigations into grammar-internal factors potentially conditioning variation, as well as on constraints governing IAV.

We now present the results of our corpus study on IAV in two morphosyntactic domains, namely substitute infinitive constructions and verbal complexes (Section 3.1) and case-marking in the (pro)nominal domain (Section 3.2). IAV (or “idiolectal variability” in the parlance of Cornips 2009) can be seen in two dimensions: the first one is to be observed in order variation, where one and the same speaker uses different serialisations without any apparent semantic or information-structural effects. A related phenomenon, which we also address, is morphological variability regarding the IPP-verb. The second type of variation we will be observing concerns case-marking patterns, in particular the formal distinctions of different case-marking of word forms. IAV in this domain is characterised by single speakers showing variability regarding these formal distinctions in the same syntactic context.

3.1 IAV within the verbal complex

In the following, we will be dealing with two phenomena that are tightly connected: the so-called “substitute infinitive” (*infinitivus pro participio* = IPP) and word order variation in the verbal complex. Both phenomena are to be observed

in the syntactic domain corresponding to the right sentence bracket (*rechte Satzklammer*) in the traditional topological analysis of German sentence structure (see Schmid 2005 and Wurmbrand 2017 for an extensive overview). IPP is characterised by replacing the past participle with an infinitive in certain complex perfect forms, as shown by the contrast in (4), featuring a modal verb. While in simplex perfect forms, such a switch is ungrammatical (4a), as soon as the modal selects another verb, substitution of the participle becomes obligatory (4b).

- (4) a. *Der Hamster hat das nicht *wollen | gewollt.*
 the hamster has.3SG that NEG want.INF | wanted.PTPC
 ‘The hamster didn’t want that.’
- b. *Der Hamster hat das nicht fressen wollen | gewollt*
 the hamster has.3SG that NEG eat want.INF
 wanted.PCPT
 ‘The hamster didn’t want to eat that.’

Typical verb classes that show the IPP effects are causatives (*lassen* ‘let’), modals, and perception verbs. In the dialects, it can also be found with other verbs (see Schallert 2014a: 251–254 for some discussion). Note that there is also variation regarding obligatoriness: While IPP is obligatory with (causative) *lassen* and modals, it is optional with perception verbs, as shown by (5).

- (5) *Man hat den Hamster pfeifen gehört | hören.*
 one has.3SG the hamster whistle hear.PCPT hear.INF

The substitute infinitive is found in large parts of the Continental West-Germanic dialect continuum, most typically in Dutch and German varieties (Schmid 2005). From a morphosyntactic perspective, this phenomenon has several interesting properties.

- IPP only occurs with certain verb classes that can be ordered in an implicational hierarchy. Governing factors are semantics as well as the orientation of the respective verb (raising vs. control; cf. Askedal 1991; Schmid 2000; Schallert 2014a).
- Generally speaking, the verbal complex in Dutch and German shows word order alternations, and with substitute infinitives the amount of variation is often the highest (Wurmbrand 2017).
- Non-verbal interveners (*verb projection raising*) can be found with certain serialisations, while others behave in a compact manner (“cluster property”; cf. Haider 2003).

In the following, we will be mainly concerned with morphological effects and word order variability. Even in Standard German, deviations from the typical left-branching base order occur. A typical test scenario are examples like (6). For many speakers, several of the $4! = 24$ possible variants are fine; typical examples are given in (6a) to (6c). Note, however, that only a certain portion of the logically possible variants are actually attested (see Bader and Schmid 2009 for some discussion on the grammatical factors that govern this distribution).

- (6) *In vielen Handwerker-Rechnungen steht nicht drin, was gemacht wurde, sondern was {gemacht, werden, sollen, hätte} was but what made become shall had.SBJV.3.SG.*
- a. *hätte gemacht werden sollen*
 - b. *gemacht werden hätte sollen*
 - c. *gemacht hätte werden sollen*
- ‘Many invoices (from craftsmen) don’t list what was done but what should have been done.’

An important generalisation is that left-branching orders are compact while right-branching ones allow interveners (Haider 2003: 93). This property is connected with a more general division within the Germanic languages: While in OV languages (German, Dutch, Frisian, etc.), the base order of the verbal complex is left-branching and compactness prevails (7b), the Germanic VO languages (English, Scandinavian, etc.) show a completely right-branching order.⁹ Interestingly, interveners are admitted at any position, as evidenced by the English example in (7a), yet the verb order always stays fixed. This is not the case in OV where deviations from the base order can be observed. The most salient case is fronting of the finite auxiliary to the first position within the verb complex, which opens up a slot for non-verbal interveners, as evidenced by the examples in (8) (see Kefer and Lejeune 1974 for some representative data). In Standard German, IPP is a typical context in which this fronting occurs, yet comparable effects are also found with *werden* ‘become’ (Schmid 2005: 40). In the dialects, a higher amount

⁹ We define OV vs. VO base order as the relative order of head and its complements within the VP. *Right-* vs. *left-branching* refers to the direction of status government (Bech 1955), i.e. morpho-syntactically coded government relation between different verbs in complex verb forms (e.g. perfect auxiliaries like *haben* ‘have’ or *sein* ‘be’ always select a past participle, while modals select a bare infinitive, etc.). In the first case, this would be $[V_1 > V_2 > V_3 \dots > V_n]$, in the second case its reverse $[V_n < \dots < V_3 < V_2 < V_1]$.

of verb order variation can be found, and nonverbal interveners are admitted as soon as there are right-branching segments within the verbal complex.

- (7) Right- vs. left-branching base order in the verbal complex (Haider 2003: 93):
- a. *The new theory certainly may possibly have indeed been badly formulated.*
(Quirk u. a. 1986: 495, § 8.20)
 - b. *dass die neue Theorie wohl tatsächlich schlecht formuliert (*) worden (*) sein (*) mag*
- (8) *Das war doch wohl ein Kredit den er hätte*
that was MP apparently a credit that he had.SBJV.3SG
besser nutzen können
better use.INF can.IPP
'That was indeed a credit that he should have made better use of.'
(corpus example; Schallert 2014a: 256)

Let us now have a look at these phenomena in our corpus data (from Vorarlberg). We focus on modal verbs, the most token-frequent class of IPP-verbs (cf. the respective figures in Ruoff 1981). For most parts of this region, the infinitive and the participle of the respective verbs show syncretism, so that the term "substitute infinitive" might be misleading. This can be seen in examples like (9) which feature a simple perfect form where the "regular" infinitive would be ungrammatical.

- (9) *un' [...] wer Wüßbroot wella hät*
and who white.bread want.PTCP has
'and who wanted white bread'

Following Dal (1954), we name them *indifference forms* (see Schallert 2014b: 267 for some discussion). With causative *lassen* 'let', however, there is an interesting spectrum of variation. Some speakers show complete syncretism, while others display the typical IPP-effect, i.e. simple perfect with participle, complex perfect forms with (optional) IPP (more details below).

As mentioned in the introduction of this section, IAV can be observed concerning order variation where one and the same speaker uses different serialisations without any apparent semantic or information-structural effects. A typical example is given in (10): the serialisations 3-1-2 and 1-2-3 appear side by side even with the same modal verb. Of course, it can never be logically excluded that this variability might be governed by subtle grammatical differences. However, we have checked for all the obvious influencing factors that have been discussed in the relevant literature on verbal complexes, among them information structure, in particular focus

(Schmid and Vogel 2004; Sapp 2011) or scope differences associated with certain configurations (see the discussion in Schallert 2014a: 90–92 and the references quoted there). Note that different verb classes surfacing with the IPP construction impose interesting order restrictions on the verbal complex, but since we focus on modal verbs, this apparent factor is controlled for as well.

- (10) *d'Schwiz* *isch irgendwie ain Ideaalland gsi [...] des*
 det=Switzerland is somehow an idea.country been that
m'r sich immer nur vorschella₃ hât₁ können₂, und nie
 one REFL always only imagine has can.IPP and never
sälber hât₁ können₂ aluaga₃
 by.oneself has can.IPP see
 'Switzerland has always been some kind of ideal country that you could
 only imagine, but never see with your own eyes.'

Tables 6 and 7 (taken from Schallert 2014b: 278–279) shows the co-occurrence patterns for 2- and 3-verb combinations that could be extracted from our corpus, each audio-recording (or its transcript, for that matter) reflecting the output of a single speaker (≈ single grammatical system).

Table 6: Idiolectal variability with 2-verb combinations.

Serialisations	Recordings (≈ grammars)
Type A: 1-2 & 1-X-2 & 2-1	43
Type B: 1-2 & 1-X-2	98
Type C: 1-2 & 2-1	58
Type D: only 1-2	25
Type E: only 1-X-2	28
Type F: only 2-1	32

Table 7: Idiolectal variability with 3-verb combinations.

Serialisations	Recordings (≈ grammars)
Type A: 1-2-3 & 3-1-2	9
Type B: 1-2-X-3 & 3-1-2	11
Type C: 1-2-3 & 1-2-X-3	8
Type D: only 3-1-2	51
Type E: only 1-2-3	18
Type F: only 1-2-X-3	24
Type G: only 1-3-2	4
Type H: only 3-2-1	1

Let us now turn to morphological variability concerning the IPP-verb, as observed with the causative verb *lassen* ‘let’ (Alemannic: *loo*). In Schallert (2014a: 184–185) the results of a corpus study with an additional direct exploration are reported. Simple and complex perfect forms of this verb were compared, cf. (11).

- (11) a. *Ich habe das Buch dort gelassen* (simple perfect)
 I have the book there let.PCPT
 ‘I have left the book there.’
 b. *Ich habe das Buch liegen lassen* (complex perfect)
 I have the book lie let.IPP
 ‘I have left the book lying there.’

From the transcripts analysed, 15 showed evidence of a regular substitute infinitive, i.e. a contrast between participle and infinitive (Type A); 7 displayed complete syncretism between the two forms (Type B), as evidenced by examples like (12), with a form matching the infinitive where the participle would be obligatory. Lastly, 3 further recordings always used the participle (Type C).¹⁰

- (12) *mir hânt halt des [...] Hö und d’s Grääs*
 we have.3PL MP the hay and the grass
doss ’lâ (XI/051: Rankweil)
 outside let
 ‘We have left the hay and the grass outside.’
 (Schallert 2014a: 183)

The crucial point is that while most of these transcripts cover homogenous regions, we find an overlap between these systems at three locations (1 for Type A and C, 2 for Type A and B), thus showing speaker-oriented variation.

3.2 IAV with case-marking

The second type of variation we will be observing concerns case-marking patterns. This means that it does not affect the cases demanded in certain contexts, by certain verbs or prepositions (as in e.g. De Hoop 2012), but the formal distinction of nominative, accusative, and dative within the paradigm of different word

¹⁰ A further 3 locations yielded other types of variation that are not relevant for the present discussion.

categories inflecting for case.¹¹ From a structural perspective, these three cases can be observed in all Upper German regions despite certain syncretic tendencies, since they are distinctly marked, at least on personal pronouns as well as in some masculine word classes (see e.g. Shrier 1965).

The distinction of these cases is to a large extent quite uniform in Upper German. Overarching patterns of case-marking can be detected in most word classes and grammatical categories. While full distinction of the three cases occurs throughout the 1SG pronoun, syncretism of accusative and dative (N/AD) is found in the 1PL pronoun. In the 3SG, syncretism of nominative and accusative (NA/D) occurs in nearly all contexts (feminine, neuter as well as plural). Varying patterns can only be found in masculine word classes, where they mainly reflect geographical differences: while syncretism of nominative-accusative forms (NA/D) is spread over the western and southwestern area, distinction of all three cases (N/A/D) can also be found restricted to an area in the northern centre (see Ellsäßer 2020).

Both these variants fit with the general morphological set-up of these varieties: The variant NA/D that dominates in the western and southern part of Upper German dialects corresponds to the dominant case-marking pattern in the 3SG. The N/A/D variant, on the other hand, is transparent in that all three remaining cases are distinctively marked; it represents the system with the highest morphological transparency (in terms of *Naturalness Theory*). However, there is also a third variant showing accusative-dative syncretism (N/AD). It can be viewed as being quite characteristic of 3SG contexts, which normally tend to show NA/D patterns, but it is found with the masculine and thus less typical. Such a syncretism occurs only in East Upper German dialects where it is restricted to the masculine (besides its usual domain, the 1PL). The areal distribution of this pattern has hardly been investigated so far. Rowley (1997: 89–90) traces it back to the need to distinctly mark the *casus rectus* (nominative) vs. *casus obliqui* (accusative and dative). However, this assumption does not explain why this special distinction should only occur in certain masculine word classes. On the contrary, Dal (1971: 174–175) considers this a phonological rather than a morphological phenomenon since it cannot be integrated into the morphological system – unlike for example in the West Lower German systems, where this constellation can also be found with feminine and neuter word forms (see Shrier 1965). In the present context, we will follow Dal's (1971) evaluation because our data for the masculine definite article cannot readily

11 Contrary to Standard German almost all German dialects have lost the genitive as a productive case (see Shrier 1965; Koß 1983).

be reconciled with the two morphological tendencies characteristic of Upper German, i.e. complete case distinction vs. a uniform syncretism pattern for a certain word category.

It is interesting to note that these different variants of case-marking patterns are geographically determined. They are each dominant variants in a certain area of Upper German. The corpus data examined here (Ruoff 1984) originate primarily from a region that shows full distinction in masculine items and contains only little evidence for the two systems characteristic of the other two areas (i.e. NA/D and N/AD). However, systems of IAV using these different variants within a single speaker's system do also occur in Upper German and have already been described in the literature, in particular for the masculine definite article. Remarkably, idiolectal systems can show an overlap between patterns that are, geographically speaking, typical of different regions. A varying paradigm thus can be displayed as illustrated in Table 8.

While dative differentiation is always guaranteed in this system, the speaker varies between a distinct accusative form and one that is syncretic with the nominative. IAV thus shows itself varying between a distinct marking of the nominative and the accusative (N/A/D) and an overlap of these two forms (NA/D). There is also evidence for IAV between full distinction and the variant N/AD, as illustrated in Table 9.

Table 8: IAV in a case-marking system reconstructed for Heimsheim/Leonberg.

Case	Forms	
nominative	<i>der</i>	
accusative	<i>der</i>	<i>da</i>
dative	<i>em</i>	

Table 9: IAV in a case-marking system reconstructed for Herkheim/Nördlingen.

Case	Forms	
nominative	<i>dr</i>	
accusative	<i>den</i>	<i>da</i>
dative	<i>den</i>	<i>dem</i>

Previous work describing variation with case marking refers exclusively to the first type of variation (N/A/D and NA/D) and always attributes it to certain conditioning factors. The triggers for IAV are said to be animacy and individuation (Dal

Negro 2004), definiteness (e.g. Ellsäßer 2020: 200–201), certain word order variants (Werlen 1990), the phonological environment or the distinction between full and reduced forms (Weiß and Dirani 2019; Dirani 2020). It is thus either traced back to an accidental coincidence of shapes owing to phonological or morphophonological processes (and thus extra-morphologically explained) or interpreted as a reaction of morphology to semantic features or the necessity to mark information structure.

However, the present investigation differs from previous work in two fundamental aspects: in the region under investigation, full distinction of all three cases (N/A/D) can be seen as the geographically dominant variant for the masculine. This contrasts with the empirical base of older work that refers to other geographical areas and dialect systems, mainly to the High or Highest Alemannic dialects, partly South Hessian. Especially the Alemannic dialects belong to the region where NA/D is the dominant system for the masculine, and, correspondingly, the one found for the 3SG. Thus, also on the intra-individual level a basic structural difference between these areas can be assumed.

On a theoretical level, the form of IAV found in Upper German case-marking is very difficult to classify on the basis of existing approaches: the results of this analysis will show that grammar-internal conditioning factors are not sufficient to explain this type of variation, making it difficult to classify it as allomorphy (see e.g. Paster 2016: 93). An alternative interpretation would be *overabundance* (see e.g. Stump 2016: 147–151). Here, a cell in the paradigm, for example in the accusative, would have two forms that vary freely, one of which coinciding with the nominative. Thus, this form would already express a different set of morphosyntactic features. This would be a form of overabundance, which exerts a strong influence on the morphosyntactic distinctions in the system. Influences like these have already been described by Thornton (2012) for Italian and by Stump (2016: 149) for Sanskrit, both focusing on verbal morphology. Thornton (2012) seems to attribute this to uncertainty on the part of the speakers in the assignment of certain verbs and thus attributes it to an external influence (which here is due to the decay of the system).

In contrast to the established approaches, however, this work does not focus so much on modelling the concrete inflected word forms and their overlaps, but rather on another level of abstraction, namely the formal distinction of cases. Only at this level can the case systems of different idiolects be compared and overarching tendencies in these systems analysed independently of the exact development of individual word forms. However, overabundance would have to be determined individually for each paradigm and could not necessarily be compared on this level of abstraction – the same syncretic pattern could, for example, also be caused by two different nominative forms. This would be a different type

of overabundance but would result in the same case-marking pattern (NA/D). Paradigms as displayed in Table 9, where two cells show overabundance, prove troubling.

Case-marking paradigms have been reconstructed and analysed from the corpus data as follows: using the corpus analysis program AntConc (Anthony 2019), all forms of masculine definite articles were identified. The forms were annotated individually according to canonical case and possible influencing factors (semantic, morphosyntactic and phonological) (see e.g. Ellsäßer 2017 and 2020 for a detailed description of the procedure). Whether a form is syncretic or distinct was determined by comparing complete word forms within the transcript based on a synchronic definition of syncretism (Baerman et al. 2010: 7).

This approach has two fundamental advantages for the empirical analysis of IAV in case-marking patterns: first, it guarantees that variation found in the data is IAV – when comparing data from several transcripts, inter-individual variation could not be excluded as triggering the different variants. Second, paradigmatic patterns reconstructed from the corpus data can be quantified. Thus, it can be determined which variants are dominant and which ones are rare. This is implemented as follows: in a paradigm like the one illustrated in Table 9, which varies between N/A/D and NA/D, syncretic form of nominative and accusative are subsumed under the variant NA/D and distinct forms of nominative and accusative under N/A/D. Since distinct dative forms occur in both variants, they were assigned to variant NA/D and to variant N/A/D at a time. Alternatively, we could have counted each syncretism constellation separately, i.e. N/A, NA, A/D, and AD. This is, however, a trivial and tedious matter with only little gain for the present purposes.

Within the approx. 114,400 word forms in Ruoff (1984), 2,052 masculine definite articles could be found. In 12 of the 72 transcripts in Ruoff (1984), IAV could be attested for case-marking patterns in this word class, amounting to 594 tokens.¹² Three different types of IAV can be identified: Type A shows variation between N/A/D and NA/D, where N/A/D could be regarded as the dominant variant on the basis of the quantitative data (Table 10). This type can be attested for 9 of the 12 transcripts in the corpus.

¹² Note that the figures given in Table 10 and 11 are higher than the overall token count for the 12 locations with IAV, owing to our way of counting. In Ellsäßer (2020), a different counting procedure was used.

Table 10: Idiolectal case-marking systems, type A.

Transcript in Ruoff (1984)	N/A/D	NA/D
Altheim/Ulm	60	47
Bondorf/Böblingen	35	16
Emerkingen/Ehingen	37	24
Frauenriedhausen/Dillingen	60	39
Hayingen/Münsingen	40	38
Heimsheim/Leonberg	20	17
Isingen/Balingen	54	28
Meßbach/Künzelsau	26	19
Mönchsdeggingen/Nördlingen_1	42	45

A variation type that has been extensively described in the literature for the western and southwestern areas of Upper German shows variation between N/A/D and NA/D, but the dominant variant is NA/D, while N/A/D occurs only rarely (see Werlen 1990; Dal Negro 2004; Weiß and Dirani 2019; Dirani 2020). Remarkably, this particular brand (which we label “type B” for consistency), is not attested in our corpus. By comparison, type C displays a variation pattern that was characterised as rather untypical above. It varies between N/A/D and N/AD, whereby N/A/D is the dominant variant (see Table 11). This type is attested for at least three transcripts in the corpus.

Table 11: Idiolectal case-marking systems, type C.

Transcript in Ruoff (1984)	N/A/D	N/AD
Ballersdorf/Neuburg	23	14
Herkheim/Nördlingen	31	14
Waldmannshofen/Mergentheim_2	17	11

As with the word order variation in the verbal complex, the different co-existing case-marking patterns do not seem to be governed by grammatical factors (see also the discussion in Ellsäßer 2020: 191–205). Although the transcripts in the corpus are difficult to classify in terms of dialect level, Standard German influence can be virtually ruled out as a conditioning factor, as the phenomenon occurs in transcripts with varying dialectality (see Ellsäßer 2020: 204). Despite its lack of external motivation, however, the data show that IAV does not occur completely arbitrarily with both phenomena: as a matter of principle, only variants that occur across systems in the immediate surroundings are chosen. Variation here is thus drawn from the typological space of possible grammars (see Schallert

2014a: 259), in particular from what is expected in a certain region in the areal continuum.

Of particular interest here is the exact geographical location of the varying systems combined with the respective type of variation: the varying systems are mainly located in geographical transition zones between areas where different variants dominate. Thus, IAV as described and analysed in this study also has a geographical dimension: The variants occurring in the varying systems draw from the possible grammars that are geographically closest to them. IAV in both phenomena thus appears to be indicative of a type of variation already described already described in Seiler (2005) as a geographical transition pattern of morphosyntactic phenomena. The data used there only provide information on the inter-individual level, while, with our data, the variation space can be traced back to IAV. What is more, contrary to the questionnaire data in Seiler (2005), quantitatively dominant and less dominant variants can be distinguished on the basis of our corpus data. It shows that the variants are not randomly distributed within the systems but follow a certain pattern. The dominant variant within the varying system depends on the dominant variant of the nearest homogeneous area. The geographical transition from one homogeneous area to the next is characterised by IAV, whereby the dominance of one variant gradually decreases, while the proportion of the alternative variant increases correspondingly.

4 IAV: An Optimality-theoretic perspective

4.1 The verbal complex

Let us now turn to an analysis of the patterns of IAV we found in our corpus data. In Schallert (2014a, 2014b) an analysis of idiolectal variability in the verbal complex is developed that comprises the following components: The CAT-formalism, a representational variant of *Categorical Grammar* (Williams 2003, 2004), is used as a hard backbone, i.e. the part of grammar embodying inviolable constraints. This formalism is constrained by a branching condition requiring syntactic structures above the head-level to be right-associative (Haider 2013), meaning that each branching node on the main projection line has to follow its non-branching sister. Partly specified CAT-representations act as input for the flexible component of the grammar, which consists of ranked, violable constraints as assumed by (*Stochastic Optimality Theory* [StOT] (Boersma 1998; Boersma and Hayes 2001; Bresnan et al. 2007).

StOT differs from standard OT in two aspects: Constraints are modelled as mean values of normal distributions on a continuous scale that overlap to a

greater or smaller degree. At each candidate evaluation (corresponding to a production or perception event), a random value (drawn from the respective normal distribution) is added to these mean values. An OT grammar with stochastic evaluation is able to generate categorical as well as variable outputs, depending on how close the relevant constraints are.

Under the assumption that constraints embody mean values of associated normal distributions, interesting claims can be made about preference patterns. In particular, an OT grammar can be “trained” with frequency data on certain constructions drawn from corpora. What is more, (gradual) changes in the input data (e.g. a drop or an increase in frequency of a certain variant) and their impact on the grammatical system can be simulated on the computer (e.g. with Praat, cf. Boersma and Weenink 2020).

Approaches in this setting have been used to model the well-known, yet elusive phenomenon of syntactic gradience (Sorace and Keller 2005). A typical example comes from the domain of nonlocal dependencies. In (13) and (14), a wh-phrase has been extracted from a so-called “picture-NP” (a syntactic context sensitive to several grammatical restrictions). While (13b–d) were judged as significantly less deviant in a magnitude estimation study, the stimulus sentences in (14) fared much worse. In an OT setting, this difference can be modelled as the effect of “soft” vs. “hard” constraints. In the present case, these constraints would be (15) and (16), and the respective violations cause the observed differences in acceptability (Sorace and Keller 2005: 1506).

- (13) a. *Which friend has Thomas painted a picture of?*
 b. *?Which friend has Thomas painted the picture of?*
 c. *?Which friend has Thomas torn up a picture of?*
 d. *?How many friends has Thomas painted a picture of?*

- (14) a. **Which friend Thomas has painted a picture of?*
 b. **Which friend have Thomas painted a picture of?*
 c. **Which friend has Thomas painted a picture of her?*

(15) **Soft constraints on extraction**

- a. DEFINITENESS (DEF): a picture NP has to be marked [– definite]
 b. VERBCLASS (VERB): a verb subcategorising for a picture NP has to be marked [– existence]
 c. REFERENTIALITY (REF): an NP extracted from a picture NP has to be marked [+ referential]

(16) **Hard constraints on extraction**

- a. INVERSION (INV): subject and auxiliary have to be inverted.
- b. AGREEMENT (AGR): subject and verb have to agree in number.
- c. RESUMPTIVE (RES): resumptive pronouns are disallowed.

In a StOT setting, the following implications emerge (Sorace and Keller 2005: 1519):

POT [= Probabilistic Optimality Theory, i.e. StOT; S.E., O.S.] has the advantage of allowing us to compare the relative grammaticality of arbitrary structures. It also provides a natural account for the dichotomy between hard and soft constraints: hard constraints have a very low (near-zero) re-ranking probability, while soft constraints have a higher re-ranking probability.

Another study couched in StOT terms that is closer to our topic comes from Seiler (2004), who takes as a point of departure diatopic differences in Swiss German dialects with regard to the serialisation of the verbal complex. In order to keep matters as simple as possible, we focus on 2-verb clusters (cf. Seiler 2004: 370–373, 393): while the serialisation 2-1 (corresponding to the one found in Standard German) is typical for the dialects of the east (17), the opposite order 1-2 is preferred in the western dialects (18). The relevant constraints for modeling this diatopic difference are given in (19) and (21), respectively.

(17) Western Switzerland: Guttannen (Canton Berne)

- a. *ob si das Auto schon hed zahld*
whether she the car already has.3SG paid.PTCP
'whether she has already paid for the car'
- b. *ob är äis wil hiraten*
whether he ever wants. 3SG marry.INF
'whether he ever wants to get married'
- c. *I han erscht mit vierzg glehrt fahren*
I have.3SG not.until with forty learned.PTCP drive.INF
'I didn't learn to drive until the age of 40.'

(18) Eastern Switzerland: Thusis (Canton Grisons)

- a. *ob sie das Auto scho zalt het*
'whether she has already paid the car'
- b. *ob är amal hürata wetti*
'whether he ever wants to get married'
- c. *I han erscht mit viarzig faara glärnt*
'I haven't learned to drive until the age of 40'

- (19) *HEAD-RIGHT(X): A verbal head of category X has to precede its (verbal) complements.

For the variable X, different instantiations are possible, i.e. AUX(iliary), MOD(al), and (Lexical) V(erb), thus leading to a family of sub-constraints. In (20), two examples are given, (20a) corresponding to *HEAD-RIGHT(AUX) and (20b) violating *HEAD-RIGHT(MOD), cf. the representations in (20'). However, this variant is in accordance with the V-left constraint that partially acts as its antagonist.

- (20) a. *dass er das Buch hat bezahlt*
 that he the book has.3SG paid.PCPT
 'that he has already paid the book'
 b. *dass er das Buch lesen will*
 that he the book read.INF wants.3SG
 'that he wants to read the book'

- (20') a. *hat bezahlt* {<Aux, V>} μ_{32}
 b. *lesen will* {<V, Mod>} *

- (21) V-LEFT: The lexical verb has to be at the left edge of the verbal complex.

The two serialisations 2-1 and 1-2 constitute the extremes in the areal continuum. In the dialects of the transition zone, both variants are possible, with different preferential patterns.¹³ With StOT, these transitional systems can be modelled by assuming that *HEAD-RIGHT(X) and V-LEFT overlap to a high degree. In (22), the respective means of the two constraints as calculated by the *Gradual Learning Algorithm* [GLA] (Boersma and Hayes 2001) are given (Seiler 2004: 393).

- (22) V-LEFT 103.392
 *HEAD-RIGHT(MOD) 103.188

Both constraints are very close (distance: 0.204), meaning that both possible rankings are almost as likely to be selected in a certain candidate evaluation ($p = 0.5$).¹⁴ With StOT, it is also possible to model conditioned variation via input frequencies (cf. Seiler 2004: 393). For a grammar where both 2-1 and 1-2 occur with

¹³ We abstract away from additional factors like, e.g., the syntactic category of the embedding verb (temporal auxiliary, modal, etc.).

¹⁴ This follows from certain properties of the associated density functions (see Schallert 2014a: 126 for some discussion).

a ratio of 80% to 20%, the distance between these constraints is comparatively larger, cf. (23). The constraint distance in this case is 2.308, which leads to the ranking $V\text{-LEFT} \gg *HEAD\text{-RIGHT}(\text{MOD})$ being valuated in 80% of the cases. This means that the constraint ranking calculated by the GLA fits with the actual input frequencies.

- (23) $V\text{-LEFT}$ 104.154
 $*HEAD\text{-RIGHT}(\text{MOD})$ 101.846

Let us now have a look at the analysis of idiolectal variation presented in Schallert (2014b), with some slight adaptations. Using Ruoff corpus data for modelling input frequencies in Table 12, the GLA computed the ranking in (24).


- (24) $V\text{-LEFT} \gg *L\text{-BRANCH} \gg *V\text{-MERGE} \gg *CLUST \gg *DISC \gg \text{PARSE-AUX-FIN}$

Table 12: Frequency of the different IPP-variants in the Ruoff corpus (extract).

Syntagm	1-2-3	1-2-X-3	3-1-2	2-1	1-2	1-X-2
Frequency	17.8%	17.5%	56.4%	26.9%	32%	37.3%

We only deal with those constraints that are relevant for the present discussion (see Schallert 2014b: 290–296 for a more thorough treatment). $V\text{-LEFT}$ has already been introduced – it was adopted from Seiler (2004). $*L\text{-BRANCH}$ as in (25) forbids left-branching structures in the verbal complex, cf. (26a) vs. (26b). $*V\text{-MERGE}$ as in (27) prohibits nonverbal interveners in the verbal complex, i.e. sanctions structures like (28a) in comparison with (28b).

- (25) $*L\text{-BRANCH}$ [$*L\text{-BRANCH}$]: V-categories must not be left-recursive.
- (26) a. $[V < V < V]$ *
 b. $[V > V > V]$ \mathbb{E}
- (27) $*V\text{-MERGE}$ [$*V\text{-MERGE}$]: Avoid merging V^0 -categories with categories $> V^0$.
- (28) a. *weil er hätte sollen das Buch lesen*
 because he had.SBJ.3SG should.IPP the book read
 b. *weil er das Buch hätte sollen lesen*
 because he the book had.SBJ.3SG should.IPP read
 ‘because he should have read the book’

- (28*) a. [_V hätte [_V sollen [_V das Buch lesen]]] *
 b. [_V hätte [_V sollen [_V lesen]]] 

As optimal candidates the serialisations 2-1 (2 verbs) as well as 3-1-2 and 1-2-3 (3 verbs) emerge, corresponding to Type F (see Table 6) and Type A (see Table 7), each attested for 32 and 9 speakers, respectively. Homogeneous systems like type D (only 3-1-2) can be derived via neutralisation, meaning that different inputs are lumped together (details in Schallert 2014b: 294). In (29) evaluation of the above ranking is given, as computed by the GLA.

- (29) V-left (106.0) \gg *L-Branch (106.0) \gg *V-Merge (102.0) \gg *Clust (98.0) \gg *Disc (96.0) \gg Parse-Aux-Fin (94.0)

The two constraints V-LEFT and *L-BRANCH have exactly the same mean ($\mu = 106$) and are clearly set apart from the others. As mentioned above, the probability for one of the alternative rankings V-LEFT \gg *L-BRANCH or *L-BRANCH \gg V-LEFT is exactly 50%. In classical OT, this scenario would amount to both constraints being tied; i.e. they are not ranked with respect to each other (*L-Branch V-LEFT). In the case of a temporary re-ranking, nothing changes regarding the licit serialisations with 3-verb clusters; with 2-verb combinations, however, 1-2 emerges as the optimal candidate (Schallert 2014b: 295).

Finally, let us have a look at an alternative scenario in which during stochastic evaluation the relative position of two lower constraints changes, e.g. *V-MERGE and *CLUST (distance: 4σ). If two values of their respective normal distributions are chosen that lead to *V-MERGE \gg *CLUST, the serialisations 3-1-2 and 1-2-X-3 surface as optimal, which corresponds to variation type B (Table 7) in the Ruoff data, attested with 11 recordings. The probability for this kind of re-ranking to emerge is approximately 8%, i.e. the inverse is much more likely, cf. (30).

- (30) Probabilities:
 a. Valuation of $C_1 \gg C_2$ (3-1-2 & 1-2-3) ≈ 0.92
 b. Valuation of $C_2 \gg C_1$ (3-1-2 & 1-2-X-3) $\approx 1 - 0.92 = 0.08$

4.2 Case phenomena

Finally, we sketch an analysis of case phenomena. We do not give a thorough StOT analysis but restrict ourselves to an outline of how an OT model might look. The following three constraints can be used to model IAV with case-marking: MAX-DIST, MAX-ORD, and PHON-UNITY.

From a purely functional point of view, it can be assumed that a case system strives for the complete distinction of the cases associated with it (cf. the principle of uniformity in *Naturalness Theory*; Mayerthaler 1980). This intuition can be expressed in the form of the constraint MAX-DIST, as given in (31).

- (31) MAX-DIST: All cases that can be attested for most parts of the system must also be marked distinctively.

However, case levelling is already well-advanced in the areas under investigation and syncretic patterns dominate in most grammatical contexts. From a morphological perspective, uniformity within the paradigm is desirable. Therefore, the second constraint can be formulated as follows.

- (32) MAX-ORD: Within a grammatical context there is a dominant pattern of case-marking to which all sub-contexts conform.

In our area of interest, there is another variant which, with reference to Dal (1971), has been classified here as a phonological phenomenon, since it cannot be derived from the properties of the case system itself. Although it does not seem to be due to a general phonological regularity, there is a need to unify the final segment of the articles, and this in turn leads to an exceptional pattern of syncretism with masculines.

- (33) PHON-UNITY: Masculine items bear a uniform dative and accusative ending.

We have identified three different case-marking patterns in Upper German, which are summarised in (34). The types A and C are directly attested in our data; type B is not found in the area we have been investigating but is reported for the western and southwestern areas of Upper German. Note that the order of the distributional patterns indicates the relative preference, meaning that e.g. with type A, N/A/D is preferred but NA/D is also possible for some speakers (and vice versa for type B).

- (34) Type A = N/A/D + NA/D
 Type B = NA/D + N/A/D
 Type C = N/A/D + N/AD

Type A and B emerge from the ranking MAX-DIST \gg MAX-ORD \gg PHON-UNITY, the respective evaluation given in Table 13. The first two constraints are tied (◊), i.e. not ranked with respect to each other. This means that both MAX-DIST \gg MAX-ORD and MAX-ORD \gg MAX-DIST are possible resolutions (see Müller 2000: 200–219

Table 13: Constraint evaluation yielding types A and B.

Pattern	MAX-DIST	MAX-ORD	PHON-UNITY
N/A/D		*	*
NA/D	*		*
N/AD	!*	*	

on different implementations of constraint ties in OT). In the first case (type A), N/A/D emerges as optimal, while in the second case (type B) NA/D is the winner. As mentioned in the previous section, this state of affairs would amount to both constraints having the same mean value in a StOT-setting.

Type C, on the other hand, emerges from the ranking PHON-UNITY >> MAX-DIST >> MAX-ORD, with the evaluation in Table 14. Once again, there is a tie between the two high-ranking constraints that can be resolved in two ways: under PHON-UNITY >> MAX-DIST, N/AD is optimal; under MAX-DIST >> PHON-UNITY it is N/A/D.

Table 14: Constraint evaluation yielding type C.

Pattern	PHON-UNITY	MAX-DIST	MAX-ORD
N/A/D	*		*
NA/D	!*	*	
N/AD		*	*

In a StoT setting, it is possible to simulate the effect of random perturbations during constraint evaluation. Let us assume for type A that our three constraints are valued with the following means: MAX-DIST (100.0), MAX-ORD (99.0), PHON-UNITY (95.0). Using Praat, we ran 1000 trials (each of which corresponding to a single production/perception act), with an evaluation noise of 2σ (the standard setting). This yielded the variant frequencies in (35). Note that also N/AD occurs, albeit rarely. This is the effect of temporary re-rankings where PHON-UNITY is valued highest.

- (35) N/A/D: 629 (62.9%)
- NA/D: 359 (35.9%)
- N/AD: 12 (1.2%)

For type C, we assume the following means: MAX-DIST (100.0), PHON-UNITY (99.0), MAX-ORD (95). Using the same procedure as before, we arrive at the frequencies in (36).

- (36) N/A/D: 621 (62.1%)
 NA/D: 14 (1.4%)
 N/AD: 365 (36.5%)

Of course, the results of our simulation only very roughly match the actual frequency data in Tables 10 and 11, respectively. However, they show that the constraints we assumed yield a realistic scenario for the variable outputs that are characteristic of IAV with case-marking. As with our study on verbal complex phenomena in Section 3.1, frequency data could also be used as training data to see if the GLA arrives at the constraint rankings that we assume, thus demonstrating that they are learnable in the process of language (or dialect) acquisition. However, since it is not trivial to come up with more elaborate frequency data on the different case-marking patterns, we leave this matter to further research.

We have shown that the morphosyntax of the verbal complex as well as dialectal case systems show a high degree of variation. However, this variation is not arbitrary. Rather, it remains very well within the confines of the general typological makeup of the respective grammatical systems. This state of affairs can be captured in a constraint-based fashion (OT) with a stochastic component. This kind of model allows the modelling of non-conditioned IAV and in particular changes in the input frequencies associated with particular variants that can have repercussions at the group level. Thus, it offers a more precise formulation of accommodation processes, which have been tried to capture in different ways (e.g. Seiler's 2008 *Plasticity Hypothesis* or Schmidt and Herrgen's 2011 concept of *Synchronisation*).

5 Conclusions

In this chapter, we discussed several cases of non-conditioned IAV in the domain of morphosyntax. The empirical base consisted of the Ruoff corpus, a large collection of transcribed audio-recordings. Even though corpus data might not at first glance be particularly well-suited for tackling variation on the speaker level, they proved to be a revealing source for this kind of investigation.

Non-conditioned IAV might appear paradoxical from a standpoint that regards grammatical structures as highly adapted to functional pressures that are grounded in domain-general cognitive functions, as envisaged by usage-based approaches. However, we showed that the variability we encountered is not arbitrary but remains within the confines of the general typological makeup of the dialects in question. Reorderings in the verbal complex, for instance, are only

observed in the Germanic OV languages (German, Dutch, etc.), and the patterns of case syncretism we analysed correspond very well to what one might expect from an Upper German three-case system.

We sketched an integrative approach couched in a constraint-based fashion that comprises “hard” and “soft” constraints, respectively. (Stochastic) Optimality Theory opens up the possibility of variable outputs, based on the idea that constraints are ranked on an interval scale, not just ordinally (as in standard OT). As each constraint represents the mean of a normal distribution (with overlaps), a certain amount of overlap is always possible. Taking each production/perception act as a constraint evaluation (with the addition of some random noise), temporary re-rankings are possible, in particular with constraints whose means are quite close. An interesting prediction that this ontology of constraints makes is that non-conditioned IAV is extremely unlikely with regard to “hard” constraints. Depending on how richly structured one takes the input to the harmony evaluation (i.e. the process of constraint evaluation) to be, this component of the grammar is predicted to be immune to variability as well.¹⁵

When it comes to the question of ergodicity, we can only offer some reflections on a conceptual level since our data do not meet the necessary requirements, as discussed e.g. by Molenaar (2015): as we have been only dealing with categorical variables (i.e. frequency data for the grammatical patterns investigated), there is no way to calculate (or compare) average individual and group scores, respectively. However, we can at least be sure that the informant population underlying our corpus is reasonably homogenous in terms of the speaker’s dialect level (see our discussion at the beginning of Section 3). With some caution, we can also assume that the same applies to sociolinguistic variables like profession or socio-economic status. Let us explain in which way our findings can bear on this question: in sociolinguistics, it has traditionally been assumed that variation on the individual level always moves within the range that can also be observed between speakers (Bell 1984: 151). Approaches couched within StOT like, e.g., Bresnan et al. (2007: 332) make the prediction that IAV covers the bandwidth of what is typologically (or grammar-internally, for that matter) possible, while areal or sociolinguistic factors act as some sort of filter.¹⁶

¹⁵ The question of what exactly constitutes the input in OT has been intensely discussed but still has not been resolved (see Müller 2000: 11–13 and Heck et al. 2002 for a basic discussion). However, we regard it as uncontroversial that there are some basic properties of the input that are governed by inviolable constraints (e.g. constituent structure, parts of the semantic-conceptual structure, etc.).

¹⁶ An important precursor of this view, as highlighted by Cornips (2009: 206), is Labov’s concept of *variable rules* (see Labov 1969, 1972) that has been statistically implemented by Cedergren

The present analysis predicts that in theory any combination from the typological space of possible grammars may occur for a single variable speaker, and the two forces of social prestige and geographical proximity are simply external constraints restricting expression of the full typological range of possible inventories.

Grammatical systems allow for variability on principled grounds because constraints as the ones assumed for (St)OT are *model-theoretic* in nature, as opposed to *generative-enumerative* approaches as envisaged in mainstream generative grammar (see Pullum and Scholz 2001 on this distinction). While the latter approaches model well-formed structures as the product of a convergent derivation, the former regard them as conforming to structural descriptions specified by the theory. Müller (2020: 510) sums up this distinction quite nicely: “the generative side only allows what can be generated by a given set of rules, whereas the model-theoretic approach allows everything that is not ruled out by constraints”. With weighted and violable constraints it is obvious that they allow for variable outputs, and this quality is a useful tool for modelling grammatical structures and their interaction with other cognitive processes.

It has become evident from our investigation that individual speakers always cover a true subset of what is possible on the community/group level. In so doing, they draw on the possible grammars in the immediate geographical area. In particular, uniform (i.e. non-varying) speakers (which are often located at the centre of geographical areas) show this subset-property most clearly. IAV, from our perspective, can be viewed as some sort of “linguistic entropy” and a reservoir whence new grammatical structures emerge: individual speakers always have a certain degree of freedom in their grammatical choices, and slight changes in their behaviour may also have an impact on the frequency of competing variants on the community level.

Abbreviations

DAT	dative
INF	infinitive
IPP	substitute infinitive (<i>Infinitivus pro participio</i>)
MP	modal particle
NEG	negation

and Sankoff (1974). Variable rules in Labov’s sense differ from optional transformations assumed at that stage of Transformational Grammar in that they are statistically weighted. In particular, their application is governed by sociolinguistic or stylistic factors.

PL	plural
PCPT	past participle
PST	past tense
REFL	reflexive
SG	singular
SBJV	subjunctive
3	3rd person.

References

- Anthony, Laurence. 2019. *AntConc. Version 3.5.8*. URL: <https://www.laurenceanthony.net/software> (accessed 2 October, 2020).
- Askedal, John Ole. 1991. „Ersatzinfinitiv/Partizipialersatz“ und Verwandtes. *Zeitschrift für germanistische Linguistik* 19. 1–23.
- Bader, Markus & Tanja Schmid. 2009. Verb clusters in colloquial German. *Journal of Comparative Germanic linguistics* 12. 175–228.
- Baerman, Matthew, Dunstan Brown & Greville G. Corbett. 2010. *The syntax-morphology interface: A study of syncretism*, 2nd edn. Cambridge: Cambridge University Press.
- Bech, Gunnar. 1955. *Studien über das deutsche verbum infinitum. Vol. 1*. Kopenhagen: Munksgaard.
- Bell, Allan. 1984. Language style as audience design. *Language in Society* 13. 145–204.
- Berchtold, Simone & Oliver Schallert. 2013. *Die Mundarten der Walsertäler und des Tannbergs: Laterns, St. Gerold, Blons, Raggal, Sonntag, Fontanella, Damüls, Mittelberg, Schröcken, Warth, Lech*. Graz: Neugebauer.
- Boersma, Paul. 1998. *Functional phonology. Formalizing the interactions between articulatory and perceptual drives*. The Hague: Holland Academic Graphics.
- Boersma, Paul & Bruce Hayes. 2001. Empirical tests of the Gradual Learning Algorithm. *Linguistic Inquiry* 32. 45–86.
- Boersma, Paul & David Weenink. 2020. *Praat: doing phonetics by computer. Version 6.1.16*. URL: <http://www.praat.org/> (accessed 2 October, 2020).
- Bresnan, Joan, Ashwini Deo & Devyani Sharma. 2007. Typology in variation: a probabilistic approach to *be* and *n't* in the Survey of English Dialects. *English language and linguistics* 11 (2). 301–346.
- Bülow, Lars, Hannes Scheutz & Dominik Wallner. 2019. Variation and change of plural verbs in Salzburg's base dialects. In Antje Dammel & Oliver Schallert (eds.), *Morphological variation. Theoretical and empirical perspectives*, 95–134. Amsterdam: Benjamins.
- Cedergren, Henriette & David Sankoff. 1974. Variable rules: performance as a statistical reflection of competence. *Language* 50(2). 333–355.
- Cornips, Leonie. 2009. Empirical syntax: idiolectal variability in two- and three-verb clusters in regional standard Dutch and Dutch dialects. In Andreas Dufter, Jürg Fleischer & Guido Seiler (eds.), *Describing and modeling variation in grammar*, 203–224. Berlin & New York: De Gruyter.
- Dal, Ingerid. 1954. Indifferenzformen in der deutschen Syntax. Betrachtungen zur Fügung *ich kam gegangen*. *Norsk Tidsskrift for Sprogvidenskap* 17. 489–497.

- Dal, Ingerid. 1971. Systemerhaltende Tendenzen in hochdeutschen Mundarten. In Ingerid Dal (ed.), *Untersuchungen zur germanischen und deutschen Sprachgeschichte*, 171–180. Oslo: Universitetsforlaget.
- Dal Negro, Silvia. 2004. Artikelmorphologie: Walserdeutsch im Vergleich zu anderen alemannischen Dialekten. In Elvira Glaser, Peter Ott & Rudolf Schwarzenbach (eds.), *Alemannisch im Sprachvergleich*, 101–111. Stuttgart & Wiesbaden: Steiner.
- De Hoop, Helen. 2012. Case in Optimality Theory. In Andrej L. Malchukov, Andrew Spencer & Helen De Hoop (eds.), *The Oxford handbook of case*, 88–101. Oxford: Oxford University Press.
- Dirani, Seyna M. 2020. Zum unterschiedlichen Artikelgebrauch im Südhessischen: Empirie trifft auf Theorie. In Augustin Speyer & Julia Hertel (eds.), *Syntax aus Saarbrücker Sicht 3: Beiträge der SaRDiS-Tagung zur Dialektsyntax*, 41–60. Stuttgart & Wiesbaden: Steiner.
- Ellsäßer, Sophie. 2017. Analysing case in spoken language: A corpus study on East Franconian dialects. *Linguistic Discovery* 15(1). 66–84.
- Ellsäßer, Sophie. 2020. *Kasus im Korpus: Zu Struktur und Geographie oberdeutscher Kasusmorphologie*. Berlin & New York: De Gruyter.
- Fischer, Hanna. 2019. Dialektgrammatiken als Datenquelle? Zum Wert der dialektgrammatischen Literatur für dialektvergleichende Studien. In Mechthild Habermann, Sebastian Kürschner & Peter O. Müller (eds.), *Dialektale Daten: Erhebung – Aufbereitung – Auswertung*, 309–333. Hildesheim: Olms.
- Fleischer, Jürg. 2019. Vergleichende Aspekte der deutschen Regionalsprachen: Syntax. In Jürgen E. Schmidt & Joachim Herrgen (eds.), *Language and space: An international handbook of linguistic variation – German dialects*, 635–664. Berlin & Boston: De Gruyter.
- Fleischer, Jürg, Simon Kasper & Alexandra Lenz. 2012. Die Erhebung syntaktischer Phänomene durch die indirekte Methode: Ergebnisse und Erfahrungen aus dem Forschungsprojekt „Syntax Hessischer Dialekte“ (SyHD). *Zeitschrift für Dialektologie und Linguistik* 79(1). 2–42.
- Goldberg, Adele. 2003. Constructions: a new theoretical approach to language. *Trends in cognitive Science* 7(5). 219–224.
- Glaser, Elvira. 1997. Dialektsyntax: eine Forschungsaufgabe. *Schweizerdeutsches Wörterbuch: Bericht über das Jahr 1996*, 11–30.
- Glaser, Elvira. 2017. Wie sind die deutschen Dialekte in syntaktischer Hinsicht gegliedert? In Helen Christen, Peter Gilles & Christoph Purschke (eds.), *Räume, Grenzen, Übergänge*, 165–183. Stuttgart & Wiesbaden: Steiner.
- Glaser, Elvira, Philipp Stoeckle & Sandro Bachmann. 2020. Faktoren und Arten intrapersoneller Variation im Material des Syntaktischen Atlas der deutschen Schweiz (SADS). In Augustin Speyer & Julia Hertel (eds.), *Syntax aus Saarbrücker Sicht 3: Beiträge der SaRDiS-Tagung zur Dialektsyntax*, 11–39. Stuttgart & Wiesbaden: Steiner.
- Kefer, Michel & Joseph Lejeune. 1974. Satzglieder innerhalb eines Verbalkomplexes. *Deutsche Sprache* 2. 322–334.
- Haider, Hubert. 2003. V-Clustering and Clause Union – causes and effects. In Pieter Seuren & Gerard Kempen (eds.), *Verb constructions in German and Dutch*, 91–126. Amsterdam: Benjamins.
- Haider, Hubert. 2013. *Symmetry breaking in syntax*. Cambridge: Cambridge University Press.
- Heck, Fabian, Gereon Müller, Ralf Vogel, Silke Fischer, Sten Vikner & Tanja Schmid. 2002. On the nature of the input in optimality theory. *The linguistic review* 19. 345–376.
- Hotzenköcherle, Rudolf. 1962. *Einführung in den Sprachatlas der deutschen Schweiz: Part A*. Bern: Francke.

- Koß, Gerhard. 1983. Realisierung von Kasusrelationen in den deutschen Dialekten. In Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert E. Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*. Vol. 2, 1242–1250. Berlin & New York: De Gruyter.
- Labov, William. 1969. Contraction, deletion, and inherent variability of the English copula. *Language* 45(4). 716–762.
- Labov, William. 1972. *Sociolinguistic patterns*. Philadelphia: University of Pennsylvania Press.
- Labov, William. 1994. *Principles of linguistic change. Vol. 1: Internal factors*. Oxford: Blackwell.
- Mayerthaler, Willi. 1980. *Morphologische Natürlichkeit*. Frankfurt (Main): Athenäum.
- Molenaar, Peter C. M. 2008. On the implications of the classical ergodic theorems: Analysis of developmental processes has to focus on intra-individual variation. *Developmental Psychobiology* 50. 60–69.
- Molenaar, Peter C. M. 2015. On the relation between person-oriented and subject-specific approaches. *Journal for person-oriented research* 1(1–2). 34–41.
- Müller, Gereon. 2000. *Elemente der optimalitätstheoretischen Syntax*. Tübingen: Stauffenburg.
- Müller, Stefan. 2020. *Grammatical theory. From transformational grammar to constraint-based approaches*, 4th edn. Berlin: Language Science Press.
- Paster, Mary. 2016. Alternations: stems and allomorphy. In Andrew Hippisley & Gregory Stump (eds.), *The Cambridge handbook of morphology*, 93–116. Cambridge: Cambridge University Press.
- Pullum, Geoffrey & Barbara C. Scholz. 2001. On the distinction between model-theoretic and generative-enumerative syntactic frameworks. In Philippe de Groote, Glyn V. Morrill & Christian Retoré (eds.), *Logical aspects of computational linguistics: 4th international conference*, 17–43. Berlin: Springer.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1986. *A comprehensive grammar of the English language*. London: Longman.
- Rowley, Anthony. 1997. *Morphologische Systeme der nordostbayerischen Mundarten in ihrer sprachgeographischen Verflechtung*. Stuttgart & Wiesbaden: Steiner.
- Ruoff, Arno. 1973. *Grundlagen und Methoden der Untersuchung gesprochener Sprache*. Tübingen: Niemeyer.
- Ruoff, Arno. 1981. *Häufigkeitswörterbuch gesprochener Sprache*. Tübingen: Niemeyer.
- Ruoff, Arno. 1984. *Alltagstexte I. Transkriptionen von Tonbandaufnahmen aus Baden-Württemberg und Bayerisch-Schwaben*. Tübingen: Niemeyer.
- Ruoff, Arno. 1985. *Alltagstexte II. Transkriptionen von Tonbandaufnahmen aus Baden-Württemberg, Vorarlberg und Liechtenstein*. Tübingen: Niemeyer.
- Sapp, Christopher D. 2011. *The verbal complex in subordinate clauses from medieval to modern German*. Amsterdam: Benjamins.
- Schallert, Oliver. 2014a. *Zur Syntax der Ersatzinfinitivkonstruktion: Typologie und Variation*. Tübingen: Stauffenburg.
- Schallert, Oliver. 2014b. IPP-constructions in Bavarian and Alemannic in comparison. In Günther Grewendorf & Helmut Weiß (eds.), *Bavarian syntax. Contributions to the theory of syntax*, 249–304. Amsterdam: Benjamins.
- Schmid, Tanja. 2000. Die Ersatzinfinitivkonstruktion im Deutschen. *Linguistische Berichte* 183, 325–351.
- Schmid, Tanja & Ralf Vogel. 2004. Dialectal variation in German 3-verb clusters. A surface-oriented optimality theoretic account. In *Journal of Comparative Germanic Linguistics* 7, 235–274.

- Schmid, Tanja. 2005. *Infinitival syntax. Infinitivus pro participio as a repair strategy*. Amsterdam: Benjamins.
- Schmidt, Jürgen E. & Joachim Herrgen. 2011. *Sprachdynamik: Eine Einführung in die moderne Regionalsprachenforschung*. Berlin: Schmidt.
- Seiler, Guido. 2004. On three types of dialect variation and their implications for linguistic theory. Evidence from verb clusters in Swiss German dialects. In Andreas Dufter, Jürg Fleischer & Guido Seiler (eds.), *Describing and modeling variation in grammar*, 367–399. Berlin & New York: De Gruyter.
- Seiler, Guido. 2005. Wie verlaufen syntaktische Isoglossen und welche Konsequenzen sind daraus zu ziehen? In Eckhard Eggers, Jürgen E. Schmidt & Dieter Stellmacher (eds.), *Moderne Dialekte – neue Dialektologie*, 313–341. Stuttgart & Wiesbaden: Steiner.
- Seiler, Guido. 2008. Syntaxgeographie und Plastizität der Grammatik. In Karin Donhauser & Elvira Glaser (eds.), *Empirische Grundlagen moderner Grammatikforschung*, 49–58. Berlin: Peter Lang.
- Seiler, Guido. 2010. Investigating language in space: questionnaire and interview. In Peter Auer & Jürgen E. Schmidt (eds.), *Language and space: An international handbook of linguistic variation. Vol. 1: Theories and methods*, 512–527. Berlin & New York: De Gruyter.
- Shrier, Martha. 1965. Case systems in German dialects. *Language* 41(3). 420–438.
- Smolensky, Paul & Géraldine Legendre. 2006a. *The harmonic mind. From neural computation to optimality-theoretic grammar. Vol. 1: Cognitive architecture*. Cambridge: MIT Press.
- Smolensky, Paul & Géraldine Legendre. 2006b. *The harmonic mind. From neural computation to optimality-theoretic grammar. Vol. 2: Linguistic and philosophical implications*. Cambridge: MIT Press.
- Sorace, Antonella & Frank Keller. 2005. Gradience in linguistic data. *Lingua* 115. 1497–1524.
- Stump, Gregory T. 2016. *Inflectional paradigms: Content and form at the syntax-morphology interface*. Cambridge: Cambridge University Press.
- Thornton, Anna M. 2012. Overabundance in Italian verb morphology and its interactions with other non-canonical phenomena. In Thomas Stolz, Hitomi Otsuka, Aina Urdze & Johan van der Auwera (eds.), *Irregularity in morphology (and beyond)*, 251–269. Berlin: Akademie Verlag.
- Weiß, Helmut & Seyna M. Dirani. 2019. Strong or weak? Or: How information structure governs morphosyntactic variation. In Antje Dammel & Oliver Schallert (eds.), *Morphological variation: Theoretical and empirical perspectives*, 311–342. Amsterdam: Benjamins.
- Werlen, Iwar. 1990. Kasus und Wortstellung in alemannischen Dialekten. In Marthe Philipp (ed.), *Alemannische Dialektologie im Computer-Zeitalter*, 165–190. Göppingen: Kümmerle.
- Williams, Edwin. 2003. *Representation theory*. Cambridge: MIT Press.
- Williams, Edwin. 2004. The structure of clusters. In Katalin É. Kiss & Henk van Riemsdijk (eds.), *Verb clusters: A study of Hungarian, German and Dutch*, 173–201. Amsterdam: Benjamins.
- Wolfensberger, Heinz. 1967. *Mundartwandel im 20. Jahrhundert: dargestellt an Ausschnitten aus dem Sprachleben der Gemeinde Stäfa*. Frauenfeld: Huber.
- Wurmbrand, Susanne. 2017. Verb clusters, verb raising, and restructuring. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax*, 229–343. Oxford: Wiley-Blackwell.

Nathalie Entringer

Inter- and Intra-individual Variation in Luxembourgish. A Quantitative Analysis of Crowd-sourced Speech Data

Abstract: As a young and comparatively little-standardised Germanic language, Luxembourgish is characterised by a very high degree of variation, which in many cases is still unexplored. This also applies to the morphological variation of the superlative (*dat schéinst / dat schéinst-en / dat schéinst-en-t Päerd* ‘the most beautiful horse’) and the adjectival participle (*e gefëllt-en / e gefëllt-en-e Croissant* ‘a filled croissant’). This empirical study is the first attempt to fill this research gap. On the one hand, the chapter aims to explore the variation of these phenomena from a more classical perspective, that is, by analysing inter-individual variation (IEV); the purpose of it is to identify possible linguistic and social constraints that influence the variation. On the other hand, the chapter also focuses on intra-individual variation (IAV), i.e. variation within a speaker that is situationally independent. This analysis aims to evaluate the results of the IEV perspective and also to reveal further specificities of the variation. Studying a large corpus of crowd-sourced speech data leads to several findings. It becomes apparent, for example, that part of the morphological variation can be explained by the influence and interaction of different linguistic factors. Furthermore, there is evidence that IAV manifests in various forms: as the expression of individual linguistic preferences, as the expression of linguistic insecurities and as the expression of language change.

Keywords: morphological variation, Luxembourgish, inter-individual variation, intra-individual variation, individual linguistic preferences, linguistic insecurity, language change

Acknowledgements: I would like to thank Lars Bülow and Alexander Werth for their constructive feedback and the anonymous reviewers for their valuable comments on the drafts of this chapter.

<https://doi.org/10.1515/9783110743036-008>

1 Introduction

When dealing with language variation, sociolinguistics traditionally addresses three main questions: what exactly the variation consists of, how it can be characterised and what factors influence it. Within the quantitative paradigm, (inter-individual) variation is usually characterised as an expression of language change (Labov 2006; Tagliamonte 2012), whereas in the discussion of *intra-individual variation* one usually speaks of *intraspeaker variation*, i.e. variation dependent on the speech situation (Bell 1984, 2014; Eckert 2000; Eckert and Rickford 2001). Within this qualitative approach, variation depends on, among other things, the situational context, the interlocutor or the topic. However, another form of intra-individual variation (IAV) is also conceivable: IAV independent of the speech situation, that is, “the use of the same speech of style in similar situations” (Bülow, Scheutz, and Wallner 2019: 98). The analysis of this type of IAV has so far represented a desideratum in the study of language variation.¹ Thus, it seems to be particularly useful in studying the tendencies in how a language evaluates. For instance, Lowie (2017: 131) postulates that this type of IAV indicates that language change is currently taking place – a correlation that Merten in this volume and Nickel in this volume sketch as well.

For several reasons, Luxembourgish is especially suitable for an analysis of IAV independent of the speech situation. First, this young and comparatively little-standardised Germanic language is characterised by a high degree of variation, which is partly neither diatopic nor diaphasic, i.e. due to variation within one speech situation. Furthermore, at least in the area of morphological variation, situation-independent variation seems to play a role. Second, the analysis of IAV has an advantage in the context researching language change at a methodological level. Since older comparative data are often missing and real-time analyses are rarely possible, the analysis of IAV (at least in the form of apparent-time studies) allows for making the variation and thus the possible language change more tangible and comprehensible.

For these reasons, the current chapter combines the analysis of inter-individual (IEV) and intra-individual variation in the study of two selected morphological phenomena (the superlative and the adjectival participle) to answer the following questions:

- 1) In the context of IEV: Which internal and external linguistic factors influence variation? To what extent does an apparent-time analysis point to language change?

¹ For more information about the distinction between *intraspeaker variation* and *intra-individual variation*, see Bülow and Pfenninger (2021).

- 2) In the context of IAV: To what extent can one speak of IAV, and which manifestations of IAV can be displayed?

However, it is important to emphasise that the current study is definitely an empirical survey because it is based on a large corpus of speech data gathered by a mobile application. Furthermore, it is important to stress that we are dealing with the first empirical study into morphological variation because research into morphology, especially morphological variation, is one of many research desiderata in Luxembourgish studies. Therefore, the present article is a first approach towards an analysis of morphological inter- and intra-individual variation of two so far unexplored phenomena in Luxembourgish.

The current chapter is structured as follows: Section 2 will set out the theoretical framework for the analysis, whereas Section 3 presents the empirical data and methods used in the context of this survey. Section 4 focuses on the two phenomena, the corresponding variation paradigms and the results of the empirical study. The phenomena and the morphological variation are adequately described in a quantitative and a qualitative approach. In addition, this section brings up the questions concerning possible constraints, language change and IAV. The article concludes with a synthesis section, which summarises but also addresses and specifies some manifestations in relation to IAV and morphological variation, that is, language change in Luxembourgish.

2 Theoretical preliminaries

Before focusing on the examined phenomena and the results of the empirical analysis, this section will clarify some theoretical assumptions. The current work is integrated into sociolinguistic research, which questions the *postulate of homogeneity* and characterises language use and variation within a speech community as *orderly heterogeneity* (Weinreich, Labov, and Herzog 1968). It conceptualises language not as a rigid and unchangeable but as a “dynamic, complex and adaptive system” (Beckner et al. 2009; Bülow unpublished). This means not only that the use of language within a language community is heterogeneous, but also that the same is true for that of the individual speaker. The speakers are variable in their use of language throughout their lifespan, not merely in the context of language acquisition. In this context, variation is modelled as an expression of individual and group developments, where these are interdependent in character. This also applies to language knowledge, which is stabilised or modified by synchronisation processes in interaction with each other (Schmidt and Herrgen 2011). Therefore, language

change should by no means be seen as independent of individual language development tendencies. Through conventionalisation or synchronisation, innovations on an individual level can lead to a modified common linguistic knowledge (Bybee 2015). Based on these considerations, it is important to analyse the speakers and their language use, not only as part of a social group (e.g., age, gender), but also to focus on the speaker as such, that is, by looking at the individual level. This can be achieved by a combined analysis of inter-individual and intra-individual variation.

IEV means variation between different speakers, where the investigation usually involves an analysis or comparison of different speaker groups. In this context, the aim of an IEV analysis is to identify the possible social and linguistic constraints. An apparent-time analysis is applied to draw conclusions about language change. As this is also problematic because of the modelling of language as a complex and dynamic adaptive system, Bülow, Scheutz, and Wallner (2019) and Bülow (unpublished) argue for the inclusion of IAV in the analysis. The analysis of IAV can identify processes of language change in a more appropriate way because as Lowie (2017: 131) notes, above all, IAV occurs where language change is taking place. Bülow (unpublished) distinguishes between two types of IAV: IAV on the dialect-standard axis, that is, situation-dependent IAV, and “Variation desselben Sprechers innerhalb einer Varietät, [. . .] ohne dass damit ein bewusster, funktionaler sozi-symbolischer Gebrauch der Varianten einhergeht [variation of the same speaker within a variety [. . .] without a conscious, functional socio-symbolic use of the variants being associated with it]” (Bülow unpublished: 7), that is, situation-independent IAV.² In the context of research into language variation and change, the latter is particularly fruitful. In addition, this concept is appropriate in the context of the present work because the morphological variation analysed here conforms in its characteristics to the definition given. The variation does not take place on the dialect-standard axis but rather at the same speech level, and a conscious, functional socio-symbolic use seems at least questionable.

With the aim of making IAV even more tangible, especially within the scope of an apparent-time analysis, the current article considers and distinguishes various manifestations of IAV:

- 1) IAV as an expression of language change at the individual level
Based on Lowie (2017), Bülow (unpublished) and Raumolin-Brunberg and Nurmi (2011), this manifestation of IAV refers to the variation linked to ongoing language change, intending to uncover innovations at the individual level. Although it is important to note that, just as at the level of the speech

² When subsequently talking about IAV, this refers to intra-individual variation independent of the speech situation.

community, the individual is not stable in his/her language use and passes impromptu from stage x to stage y. Therefore, language change at the individual level is also characterised by variation. This manifestation of IAV helps to confirm or question hypotheses on language change within the IEV analysis.

2) IAV as an expression of individual linguistic preferences

Similar to the level of the speech community, not every form of situation-independent variation can be easily attributed to language change. Since not only communities and social groups have certain linguistic preferences – and given the background of the dynamic language concept – it seems only consistent to assume these preferences for individual speakers as well. Of course, this manifestation of IAV is very difficult to investigate (Raumolin-Brunberg and Nurmi 2011: 253) because of its characteristics, but here, we shall venture into a first attempt.

3) IAV as an expression of linguistic insecurities

This manifestation of IAV refers to the variation that arises because of linguistic insecurities. Labov (2006) already speaks of linguistic insecurities but sees the reason for them more in relation to the fear of not being able to adapt sufficiently to one's social environment, which leads to language shifts. The linguistic insecurities that are referred to here also lead to variation, but the reason is not a social pressure to adapt. The decisive point is the uncertainty caused by many competing variants without different socio-symbolic functions or by ongoing language change.

3 Data and method

The present study is based on speech data from the crowdsourcing mobile application *Schnëssen* (Entringer et al. 2021). The language data of participants from the entire Luxembourgish language area is collected through a mobile application by means of translation, picture naming, reading and question tasks. So far (as of March 2020), more than 250,000 recordings from a total of almost 4,000 participants have been collected as part of this survey.³ Assuming a number of 400,000 Luxembourgish speakers (Fehlen and Heinz 2016: 28), the participants in the study represent 1% of Luxembourgish language speakers. We were able to collect speech data from all parts of the Luxembourgish language area and from participants of all ages and genders. It should be noted, however, that younger speakers are slightly better represented in the data than older ones. Accordingly,

³ As the tasks could be paused or interrupted at any time, the recordings for each task are not available for all participants.

as people get older, the number of recordings decreases. Much the same applies to education (42.2% of the participants have a university degree) and the gender of the participants (38.4% are male and 61.6% female). Thus, we have a slight overrepresentation of younger, well-educated female speakers in the overall corpus.⁴ However, the corpus is characterised by a very good balance in terms of regional distribution. As already mentioned, recordings could be collected from every municipality in the country. In other words, the corpus is marked by its size and wide regional distribution. Although there is a slight imbalance in terms of gender, education and age of the speakers, this corpus is very well suited for quantitative and qualitative analyses in the field of variationist linguistics.

As part of the dissertation project entitled “*Vun iwwerfëlltene Bussen bis hin zu de beschte Witzer. Morphologische Variation im Luxemburgischen – eine variations- und perzeptionslinguistische Studie.*”, I am analysing a small part of this corpus (Entringer in prep.). This subcorpus consists of 7 phenomena in 173 items, distributed among 7 picture-naming tasks and 122 translation tasks, meaning there are a total of 70,278 recordings.⁵ In the picture-naming task, the participants see an image on their screen and are asked to state what they recognise in the picture. During the translation tasks, the participants see a German or French sentence, which they are then asked to translate into Luxembourgish. By pressing the recording button on their monitor, they record their description or translation. These recordings are then stored on a server and made available for analysis together with social data in Google spreadsheets.⁶ In a framework of morphological variation, translation tasks are the most suitable because different language-internal factors can be controlled and varied systematically in the individual tasks. Moreover, this also applies to the language of the translation task. Because of the typological proximity of Luxembourgish and German, German is certainly the first choice. However, to avoid a possibly too high influence of German, the high French competence of Luxembourgish speakers allows an alternation of the language in the translation task.

For the present study, I considered two morphological variables (superlative and adjectival participle); thus, the current study comprises a corpus of 32 items distributed among 27 translation and one picture naming task. The study of inter-individual variation is based on the entire subcorpus of recordings of the above-mentioned items and tasks (Table 1). Thus, the subcorpus for the present

⁴ These asymmetries can also be observed in other studies that collect data with a mobile application, for example, the English Dialects App (Leemann, Kolly, and Britain 2018: 14).

⁵ As of July 2020.

⁶ For more information about the structure and design of the mobile application *Schmëssen*, see Entringer et al. (2021).

study consists of 17,187 recordings from 3,062 participants with an average of 819.5 recordings per item and task.⁷

Table 1: Overview of the corpus of the present study.

		SUPERLATIVES	ADJECTIVAL PARTICIPLES
ITEMS		17	15
TASKS		28 ⁸	
EXAMPLES	translation task	<i>Claude Schmit hat das schönste Haus im Dorf.</i>	<i>Im Exil hat eine berühmte Malerin ihr hässlichstes Kunstwerk geschaffen.</i>
	English translation	‘Claude Schmit has the most beautiful house in the village.’	‘In exile, a famous painter has created her ugliest work of art.’
	translation task	<i>Ta meilleure amie a couru sa première course; elle était la plus rapide.</i>	<i>Pourrais-tu m’acheter un croissant fourré?</i>
	English translation	‘Your best friend ran her first race; she was the fastest.’	‘Would you buy me a stuffed croissant?’

It is important to point out that the number of recordings varies considerably between the items, ranging between 196 and 1,443.⁹ Nevertheless, this subcorpus (as well as the larger corpus) is very well suited for the analysis of IEV and IAV. Decisive for the research of IEV is the size of a corpus, the heterogeneity of the linguistic contexts and the social diversity of the participants. For the analysis of IAV, the structure of the corpus allows to focus on specific participants. Here, I work with a sample of 12 speakers (Twelve Speaker sample) who are characterised by a considerable individual corpus of recordings, which permits an analysis of the IAV of individual speakers within a paradigm but also within an item (if focused on more than once in different linguistic contexts). As Table 2 shows, a few speakers have reached a maximum of 32 recordings (tasks analysed within the current study), which relates to 129 recordings (tasks analysed within the whole corpus), where the average is 30 relating to 111. Other extra-linguistic factors taken into account when creating the sample were mother tongue, age

⁷ As of April 2020.

⁸ Some tasks include both a superlative and adjective participle. These tasks have only been counted once in Table 1.

⁹ This variation in the number of recordings is because not all participants recorded each task, and these tasks were not all available in the application at the same time. For further information about the conception of the application *Schnëssen*, see Entringer et al. (2021).

and gender. The sample consists exclusively of native speakers and is balanced in terms of gender and age.

Table 2: Overview of the sample of users with the most recordings (Twelve Speaker sample).

D	age	gender	number of recordings – subcorpus (max. 32)	number of recordings – corpus (max. 129)
<i>M1</i>	≤ 24	male	32	112
<i>M2</i>	25 – 34		31	128
<i>M3</i>	35 – 44		27	95
<i>M4</i>	45 – 54		26	96
<i>M5</i>	55 – 64		29	114
<i>M6</i>	65 ≤		26	94
<i>W1</i>	≤ 24	female	30	150 ¹⁰
<i>W2</i>	25 – 34		31	121
<i>W3</i>	35 – 44		32	114
<i>W4</i>	45 – 54		32	108
<i>W5</i>	55 – 64		32	107
<i>W6</i>	65 ≤		27	95
Average			30	111

4 The analysis of inter-individual and intra-individual variation

In the following section, the state of research and variation paradigm of both phenomena, which constitute the focus of the analysis, will be described. These sections are followed by the presentation of the results. In the results sections, I want to shed light on some first results of the study by combining an analysis of inter- and intra-individual variation. The first step each time is the analysis of the IEV. At the beginning, we will analyse if and which linguistic and social constraints influence the variation. This is followed by an analysis of IAV. The aim here is to clarify whether one can speak of IAV in the individual cases and which manifestations of IAV become apparent. The results are presented and analysed here, but a detailed discussion of the results and conclusions will follow in the subsequent synthesis section.

¹⁰ This participant has recorded some items more than once.

4.1 The variation paradigm of the superlative

Research and, hence, a detailed description of the variation of superlatives are still pending, and the grammars (Bruch 1955; Newton 1996; Schanen and Zimmer 2012) remain rather general in their descriptions. Schanen and Zimmer (2012: 209), for example, state that the superlative is formed with the inflection suffix *-st*. However, adjectives ending with an *-s* are only followed by a *-t*; unlike in German, no *e* is inserted between the final alveolar consonants [t, d, s, z] of the adjective and the superlative inflectional ending (*breet_-st* [Lux.] versus *breite-st-e* [Germ.] ‘largest’). Finally, the stem of some lexemes is also modified for “historical reasons” (Schanen and Zimmer 2012: 209).¹¹ In terms of describing the variation, however, the authors remain rather vague: “The superlative, as an attributive adjective in the nominal group, can have an additional *-e(n)*¹² for neutral, feminine and plural in C1”¹³ (Schanen and Zimmer 2012: 210). The following variation paradigm results from this description:

Table 3: The variational paradigm of the superlative in Luxembourgish.

CASE	GENDER/NUMBER									
	SG									
	M		N			F				
NOM/ACC			<i>schéin</i>	<i>-st</i>		<i>-(t)</i> ¹⁴		<i>schéin</i>	<i>-st</i>	<i>-∅</i>
	<i>schéin</i>	<i>-st</i>	<i>-en</i>	<i>schéin</i>	<i>-st</i>	<i>-(t)</i>	<i>-en</i>	<i>schéin</i>	<i>-st</i>	<i>-en</i>
			<i>schéin</i>	<i>-st</i>	<i>-en</i>	<i>-t</i>				
			‘most beautiful’							

As illustrated in Table 3, the variation is limited to the nominative and accusative case, and in terms of gender to neutral and feminine. Furthermore, not only the

¹¹ In most cases, the vowels are, if possible, modified accordingly with an *Umlaut*. However, there are also exceptions.

¹² According to the *n*-rule the *n* is dropped under certain circumstances. The *n*-rule is a phonological rule according to which the final *n* (at the end of a word or at the word boundary in compound words) is only preserved before vowels and the consonants [z], [h], [t], [d] and [n]. More details can be found in Gilles (2006).

¹³ “Le superlatif de l’adjectif, comme épithète dans le groupe nominal, peut ajouter un *-(e)n* [sic] supplémentaire au C1 [=nominative and accusative case] du neutre, féminin et pluriel.”

¹⁴ The adjective inflectional ending *-t* is here assimilated to the final *t* of the stem.

singular but also the plural is affected.¹⁵ The feminine and plural adjectives are characterised by two competing variants: one with the superlative inflectional ending *-st* and the feminine or plural inflectional ending \emptyset and another with additional *en*-inflectional ending, which is inserted between the two mentioned suffixes. Neutral adjectives, however, are characterised by three competing variants: Variant one consists of the stem, the superlative inflectional ending *-st* and the assimilated neutral adjective inflectional ending *-t*; *schéin-st(-t)*. Variant two adds an additional *en*-affix to both suffixes, the *-st* and the assimilated *-t*; *schéin-st(-t)-en*. As the results section will show, in addition to the two variants mentioned in the grammars, another variant can be defined. Variant three is similar to variant two, but the neutral inflectional ending *-t* is not assimilated but repeated at the end of the superlative form: *schéin-st-en-t*.

All in all, we are dealing with a variation paradigm, which, although it appears complex compared with German, can be classified as less complex. Even though the variation occurs in all numbers, it is limited to the adjectival usage, the NOM/ACC case and the feminine and neutral gender.

4.2 Superlative – Inter-individual variation

After the presentation of the variation paradigm, the following two sections focus on the results of the variationist linguistic analysis of the superlative. It starts with an IEV analysis to identify possible linguistic and social constraints and then moves on to the IAV analysis to address IAV and its various manifestations.

First, let us focus on two exemplary findings: the superlative of *grouss* ‘big’ and *séier/schnell* ‘fast’.

(1) French sentence:

[. . .] *elle était la plus rapide.*

Luxembourgish translation:

[. . .] *hatt war dat séier-st(-en)(-t).*

[. . .] she.N was the fast-SUP-SUP-NOM.N

‘She was the fastest’.

¹⁵ The variation of the inflectional ending only plays a role if the superlative is used as an adjective. As an adverb, it does not show any variation of the inflectional ending: *am schéinst-en* ‘most beautiful’. As with the masculine, the *en*-affix is always obligatory here.

(2) German sentence:

Dein Nachbar hat die größten Fenster in seinem Haus.

Luxembourgish translation:

*Däin Noper huet **déi gréisst(-en)-ø** Fënsteren a sengem Haus.*
Your neighbour has the big-SUP-SUP-ACC.PL windows in his house

‘Your neighbour has the biggest windows in his house’.

The adjective *séierst(-en)(-t)* ‘fastest’ in (1) is a one- or two-syllabled,¹⁶ predicatively used, neutral/feminine¹⁷ singular superlative that appears in its substantiated form. *Gréisst(-en)*, ‘biggest’, in (2) is a monosyllabic, attributively used, feminine plural superlative. A closer look at the general distribution (Figure 1)¹⁸ of the morphological variants for sentence (1) shows that the variant with the assimilated *t*-inflectional ending clearly predominates 86.8% of the time, whereas the variant with the inflectional endings *-en* and *-en-t* reach 9.1% and 4.1%, respectively.

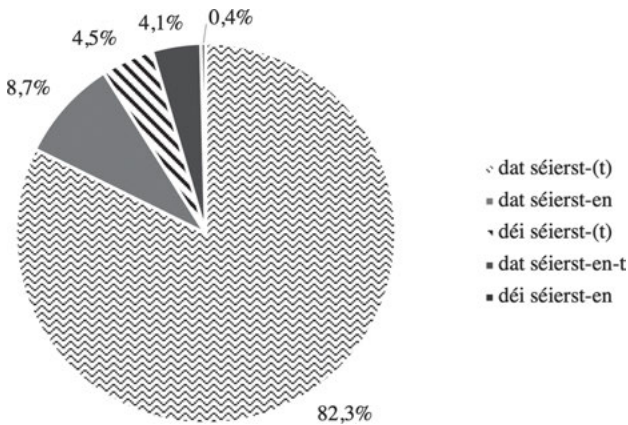


Figure 1: Overall distribution of the inflectional endings for the predicative used superlative *séierst/schnellst* ‘fastest’ (n=988).

¹⁶ The number of syllables depends on which of the synonyms *séier* or *schnell* was used to translate *rapide*, ‘fast’.

¹⁷ Variation in gender is because *Frëndin* ‘girlfriend’ can be pronominalised as both feminine and neutral (Martin 2019).

¹⁸ *Dat* is the neutral and *déi* the feminine article. For this reason, the *-en-t* inflectional ending only occurs in combination with the neutral article *dat*.

Initially, the question arises whether and, if so, which linguistic and social constraints play a role here. Within this framework, age, gender, local origin, level of education and mother tongue were retained for the analysis. The results indicate that except for age, no correlations can be found between the choice of the morphological variant and social categories. Figure 2 shows the distribution of variants by age, illustrating that younger speakers use the *en*-inflectional ending slightly more often than older ones. In other words, the morphological variant with *en*-inflectional ending increases as age decreases, even though the assimilated *t*-inflectional ending is clearly the main variant in all age categories. This result can be established for many of the analysed superlatives and might argue in favour of age as a social constraint or ongoing language change. A chi-squared test indicates a correlation between age and variant ($p < 0.001$).¹⁹

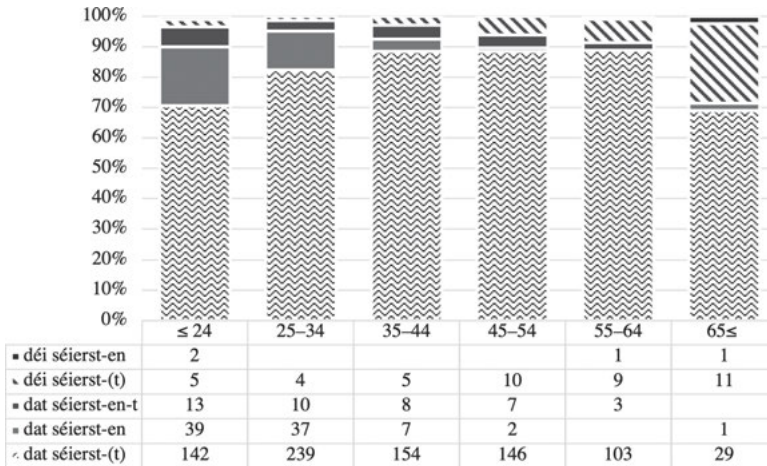


Figure 2: Apparent-time analysis of the inflectional endings for the predicative used superlative *séierst/schnellst* 'fastest' (n=988).

To gain a better overview of the variation and possible social constraints, we now consider another result: *gréisst*, 'biggest'. As Figure 3 shows, the choice of the variant differs considerably from what is shown in Figure 1. Here, the variant with the *en*-inflectional ending reaches 88.2% and the one with zero inflectional ending only 11.8%. The distribution of the variants is virtually the complete opposite of that for the superlative *séierst/schnellst*. In terms of possible social

¹⁹ For the statistical analysis, contingency tables and a chi-squared test were used.

constraints, the picture is very similar. Only age ($p < 0.001$) and mother tongue ($p = 0.004$) seem to have an influence,²⁰ whereas here, the zero inflectional ending occurs more often among younger speakers than among older ones (Figure 4). Similar to above, the less frequent variant, namely the zero inflectional ending, increases as age decreases, even if the oldest age group deviates slightly from this trendline.

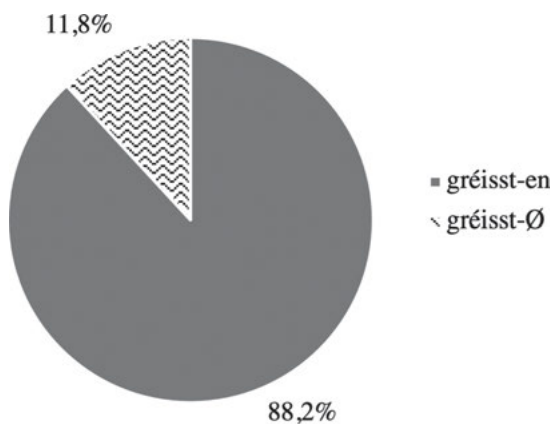


Figure 3: Overall distribution of the inflectional endings for the attributive used superlative *gréisst*, 'biggest' ($n=541$).

Regarding the correlation between the chosen variant and the factor of mother tongue, this is not only a significant influencing factor for this specific item. In addition, regarding the other results, it becomes clear that non-native speakers tend to use the zero inflectional ending in general more often than native speakers.

The results show that some extra-linguistic constraints play a role, but these can be classified as rather subordinate in the framework of this variation. However, this does not apply to the intra-linguistic factors. Considering categories such as number, gender, case, grammatical use, word stress, animation of the following noun and the realisation of the *n*-rule,²¹ it becomes clear that some of these factors have a controlling effect on the choice of inflectional ending. In what follows, I discuss the identified linguistic constraints and illustrate each of them by giving an example.

²⁰ The correlations between gender ($p = 0.993$) and level of education ($p = 0.023$) are not statistically significant (chi-squared test).

²¹ The *-n* is dropped because of the *n*-rule – s. footnote 12.

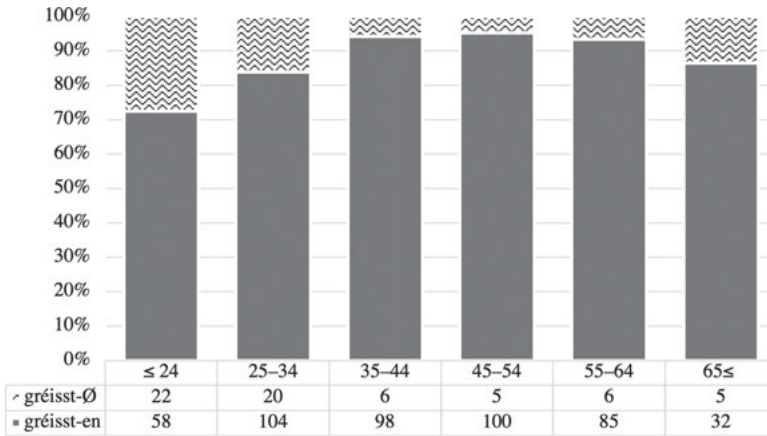


Figure 4: Apparent-time analysis of the inflectional endings for the attributive used superlative *gréisst*, ‘biggest’ (n=541).

- Grammatical use: The choice of the inflectional ending correlates with the grammatical use of the superlative. Thus, whether a superlative is used attributively or predicatively respectively even in a nominalised form influences the choice of the inflectional ending. Accordingly, superlatives that are used attributively occur on average more frequently with the *en*-inflectional ending (54%) than those used predicatively (37%) respectively in a nominalised form (17%).
- Number: Number plays a decisive role in this framework and has a controlling effect on the choice of the inflectional ending. As Figures 5 and 6 show, the same superlative requires the *en*-inflectional ending in the plural (94.1%) more frequently than in the singular (34.3%). A chi-squared test indicates a correlation between the number and the chosen variant ($p < 0.001$). Indeed, this reflects the overall results. On average, the *en*-inflectional ending occurs lexeme-independently more often in the plural (59%) than in the singular (23%).
- Word stress of the adjective: The word stress of the superlative plays a role in the choice of the inflectional ending. If the adjective has an ultimate word stress, an *en*-inflectional ending is more likely to be added, whereas in all other cases, it leads to a zero/assimilated *t*-inflectional ending. Thus, in the sentence *Feiglinge sinn déi ONSympatheschst(-en) Persounen*, ‘Cowards are the most unlikable persons’ – where there is a superlative with a stress on the initial syllable – 86.7% use the zero inflectional ending and 13.3% the *en*-inflectional ending. This is different for superlatives with stress on the ultima: *De Jean-Paul vum Statec hat déi innovatIIVST(-en) Iddien*, ‘Jean-Pal

from Statec had the most innovative ideas'. Here, the *en*-inflectional ending occurs 76% of the time and the zero inflectional ending 24%. Again, we are dealing with dependent variables. According to a chi-squared test, the correlation between the stress and choice of inflectional ending is highly significant ($p < 0.00001$). A look at the overall analysis is revealing here as well. On average, the *en*-inflectional ending occurs in 65% of cases in combination with adjectives with ultima word stress. This value decreases at 27% and 8% for adjectives with a word stress on the penultima respectively those with initial word stress.

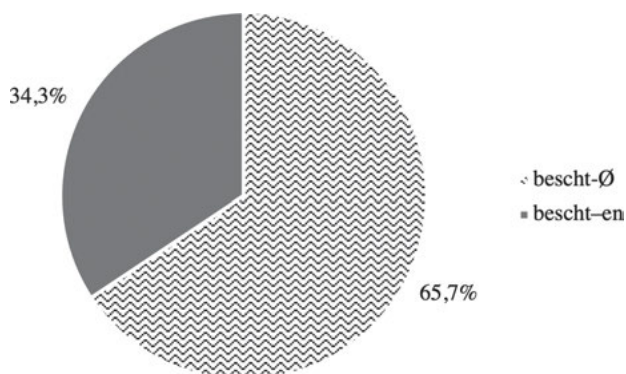


Figure 5: Overall distribution of the inflectional endings for the attributive used singular superlative *bescht*, 'best' (n=976).

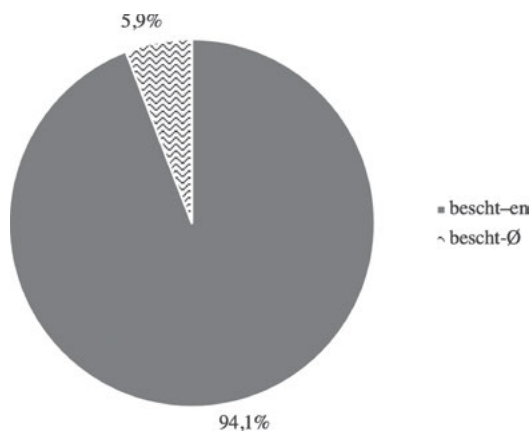


Figure 6: Overall distribution of the inflectional endings for the attributive used plural superlative *bescht*, 'best' (n=952).

- Number of syllables: In addition, the overall number of syllables also has an influence on the variation. It can be observed that the more syllables the superlative has, the more likely a zero/assimilated *t*-inflectional ending is used. The average value for the *en*-inflectional ending of monosyllabic superlatives is 69%, while the same value for the four-syllabic superlatives decreases to 19%.

As different linguistic constraints play a role in this context, it is conceivable that this leads to insecurities regarding the choice of the inflectional ending. In cases where the constraints counteract each other, this manifests within the inter-individual variation in terms of more balanced results in the choice of the inflectional ending. The sentence *Der Luxair hir Fligere sinn déi neist(-en) a ganz Europa*, ‘Luxair’s airplanes are the newest throughout Europe’, or *Meng Kollegee sinn déi Coolst(-en)*, ‘My friends are the coolest’, illustrate this perfectly (Figure 7 and Figure 8).

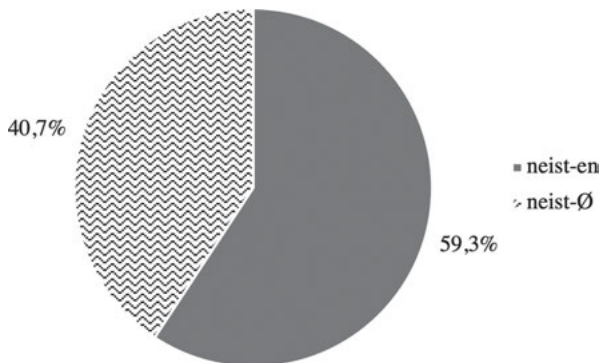


Figure 7: Overall distribution of the inflectional endings for the predicatively used singular superlative *neist*, ‘newest’ (n=1169).

In both cases, predicative use requires a zero inflectional ending, whereby the nominalised *cool* is even more likely to follow this constraint. In addition, the number (plural) gives reason to expect an *en*-inflectional ending. According to accentuation and the number of syllables, an *en*-inflectional ending in both examples is more likely. In the framework of these concrete examples, these tensions between the constraints lead to a relatively balanced result in the choice of the inflectional ending. In the context of the predicatively used, monosyllabic, plural superlative *neist*, ‘newest’, the *en*-inflectional ending only slightly predominates in 59.3% of cases. In the predicatively used, monosyllabic, plural superlative *coolst*, ‘coolest’, the zero inflectional ending is represented slightly more

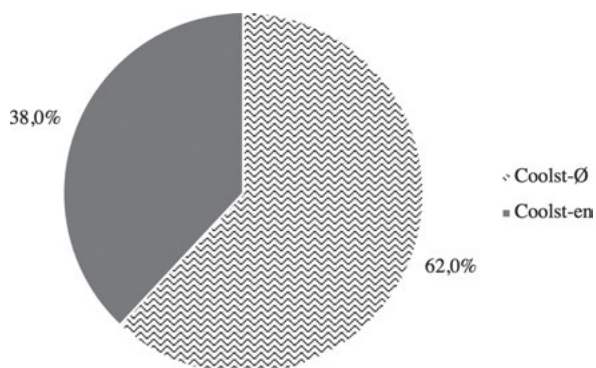


Figure 8: Overall distribution of the inflectional endings for the predicatively used singular superlative *coolst*, ‘coolest’ (n=200).

frequently at a rate of 62.0% in the data. The decisive factor in the distribution is probably nominalisation, which favours the zero inflectional ending even more in the second case.

The results of the IEV analysis regarding linguistic constraints show that in contrast to the grammatical descriptions, a systematic variation can be assumed. The superlative can have an additional *-en* for neutral, feminine and plural in the nominative and accusative cases, where the linguistic constraints of grammatical use, number, word stress and the number of syllables influence the appearance of this additional inflectional ending. Furthermore, the counteraction of linguistic constraints within a nominal phrase (NP) leads to insecurities among speakers, which becomes evident in the analysis of inter-individual variation by more or less balanced tendencies in the choice of inflectional ending. Finally, the apparent-time analysis allows for the conclusion that age can play a role as a social constraint and also shows, against the background of the identified linguistic constraints, that older speakers tend to implement them somewhat more consistently than younger ones. Conversely, this means that younger speakers vary more in their use of language. Furthermore, Luxembourgish as a mother tongue, as in the case of *gréisst*, can regularly be identified as a significant influencing factor. It is noticeable here that non-native speakers usually tend to use the zero/assimilated *t*-inflectional ending more often.

4.3 Superlative – Intra-individual variation

Now that we have gained an overview of some of the linguistic constraints that play a role within inter-individual variation, the analysis of IAV will investigate

whether and, if so, to what extent we are confronted with IAV and which manifestations – that is, IAV as the manifestation of language change on the individual level, as the manifestation of linguistic insecurities and/or as the manifestation of individual linguistic preferences – can be identified.

First, we use the Twelve Speaker sample. Since we first want to answer the question whether and, if so, to what extent the participants vary the inflectional ending, we first examine in Figure 9 the speaker's general tendencies in the choice of the inflectional ending for all analysed superlatives (17).

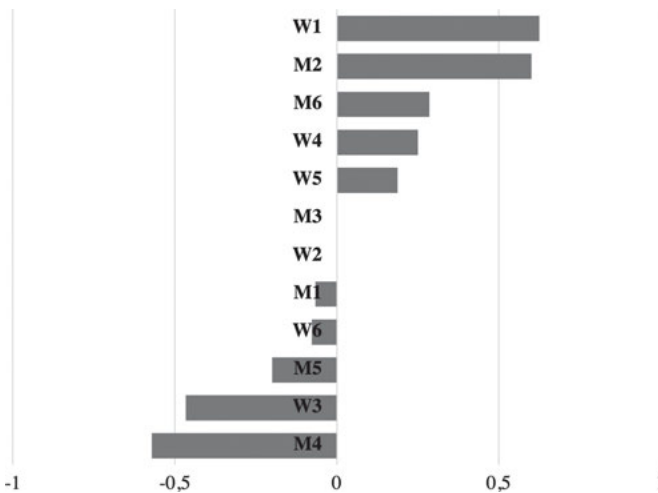


Figure 9: Tendencies of the participants in their choice of the inflectional ending.

For the analysis, the average values were used. If a participant uses the zero/assimilated *t*-inflectional ending, a value of -1 is assigned. If someone uses the *en*-inflectional ending, however, a value of 1 is given. The closer the speakers approach a value 0 , the more frequently they vary between the two inflectional endings. If the calculated average is closer to 1 , the speaker uses the *en*-inflectional ending more often. The same applies for the zero/assimilated *t*-inflectional ending if the value is closer to -1 . As Figure 9 reveals, the participants are, on the one hand, characterised by different variation intensities. Some of them are closer to the average value of 0 ; thus, they vary more than others. On the other hand, the individual tendencies regarding the realisation of the inflectional ending also differ considerably. Some speakers have a clear preference for the zero/assimilated *t*-inflectional ending (value -1), while others clearly prefer the *en*-inflectional ending (value 1). All in all, on the one hand, no speaker always uses the same inflectional ending in all cases; that is, they

all vary in their choice of the inflectional ending. On the other hand, this analysis shows that the tendencies regarding the choice of suffixes are sometimes very diverse. M4, for example, tends very clearly towards the zero/assimilated *t*-inflectional ending (-0.57), whereas W1 tends just as clearly towards the *en*-inflectional ending (0.63). Furthermore, there are speakers that vary very little (cf. the aforementioned speakers M4 and W1) and those that vary strongly (cf. M3 and W2).

In a second stage, we can now look at the extent to which the speakers implement the variants according to the linguistic constraints, i.e. the inflectional ending that can be expected according to the linguistic constraint and, thus, the frequency of the variants from the IEV analysis. As Figure 10 illustrates, in many cases, the percentage of implementations according to the constraints is relatively high.

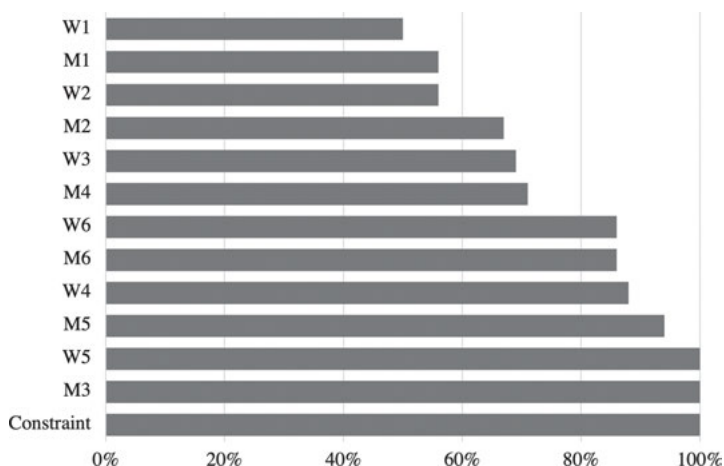


Figure 10: Relative implementation of the variants according to the linguistic constraints per participant for all analysed superlatives.

All speakers produce the variants according to the constraints more than 50% of the time, with half of them even achieving a rate of at least 86%. Speakers M3 and W5 even use the expected forms 100% of the time. This result supports the hypothesis that the constraints do play an important role in the individual choice of the inflectional ending, but these factors do not control it completely. The trends in the choice of the inflectional ending and the variation patterns of younger and older speakers do not differ measurably from each other. Thus, these findings point to the fact that age as a social factor does not play a role. It can be

Table 4: The superlative variants of speakers W5, W1 and M1 compared with the expected variant.

Lux.	Engl.	W5	W1	M1	
attributive	gutt Frëndin	besch-Ø	✓	✓	
	zouverlâsseg Assistentin	zouverlâssegst-Ø	zouverlâssegsten	✓	
	kleng Villercher	klengst-en	✓	klengst_	
	ellent Kongschtwierk	ellenst-Ø	ellensten	✓	
	vill Leit	meesch-en	meesch-_	meesch-_	
	gutt Witzer	besch-en	✓	✓	
	schéint Haus	schéinst-Ø ²³	schéinsten	schéinsten	
	grouss Fënsteren	gréisst-en	✓	✓	
	onsympathesch Persounen	onsympatheschst-Ø	onsympatheschsten	onsympatheschsten	
	betraffent Gesicht	betraffentst-Ø	✓	✓	
	wéineg Pflizen	mannst-en	mannsten	mannsten	
	predicative	nei (Fligieren)	neist-en	✓	neist_
		innovativ (Iddien)	innovatiivst-Ø	innovatiivsten	innovatiivsten
		deier (Hiem)	deierst-Ø	deiersten	✓
		séier (Frëndin)	séierst-Ø	✓	✓
béis (Madamm Müller)		béist-Ø	béisten	béisten	
cool (Kollegen)		coolst-Ø	✓	coolsten	

²² According to the linguistic constraints.²³ At this stage of the analysis, this adjective seems to be an exception in the context of the linguistic constraints. The expected variant schéinst-Ø (monosyllabic, attributive, singular) is not the main variant in the IEV analysis as in all other cases. This also explains partly the “deviations” of the speakers in Table 4. Further analyses are necessary here.

noted that we are dealing with IAV but only to some extent. Part of the supposed IAV can be explained by the implementation of linguistic constraints.

In the next stage of the discussion, we take a closer look at specific speakers of the sample. Let us first focus on speaker W5, who in all analysed cases chooses the inflectional ending according to the constraints, that is, according to the results of the overall IEV analysis. For the analysis of IAV, however, this means that in these specific cases, one cannot actually speak of IAV but rather of the implementation of certain constraints. A look at the speakers who take less account of the constraints when choosing the inflectional ending is much more interesting.

As Table 4 and Figure 9 show, speakers W1 and M1 are characterised by different preferences regarding the inflectional endings. Speaker W1 more often chooses an *en*-inflectional ending where a zero/assimilated *t*-inflectional ending is expected. Speaker M1 behaves somewhat less consistently. On the one hand, he chooses the zero/assimilated *t*-inflectional ending, but also the *en*-inflectional ending, where they are not expected. However, it is also clear that this does not result in a 100% preference for one or the other inflectional ending or that the speakers have an individual paradigm deviating from what is controlled by the constraints. Here, we are dealing rather with partial deviations from the actual paradigm²⁴, which can only rarely be explained linguistically. Considering the inter-individual variation within the sample, it is striking that the NP *déi gréisst(en) Fënsteren*, ‘the largest windows’, does not vary at all – that is, every speaker implements the linguistic constraint – whereas the NP *déi neist(-en) (Fliegeren)*, ‘newest (airplanes)’, varies widely. This is because in contrast to the first example, the constraints of number and grammatical use suggest different inflectional endings in the second. These cases lead to linguistic insecurities in the choice of the inflectional ending and, therefore, to more variation. Consequently, two manifestations of IAV become apparent here: IAV as an expression of individual linguistic preferences and as an expression of linguistic insecurity. The existence of the first is not unexpected because the low level of standardisation would allow, or even support, the expression and acceptability of such individual preferences. This also applies, for example, at least to regional variation or the field of spelling norms (Gilles and Moulin 2003). This low level of standardisation is also apparent in the high degree of inter-individual variation. At this stage of the analysis, the hypothesis can by no means be confirmed beyond a doubt. Further analyses are necessary, especially in the field of perceptual linguistics. Here, it is also indispensable to clarify which interpretation regarding the manifestations is appropriate in which particular case. IAV as an expression of lin-

²⁴ These deviations are outlined in Table 4.

guistic insecurity, however, may also serve as an explanation as to why speakers partly implement the linguistic constraints and partly deviate from them.

4.4 The variation paradigm of adjectival participles

Having discussed the superlative, this chapter will now introduce the formation of the adjectival participle and its complex variation paradigm. Unfortunately, the research situation here is similar; additionally, this phenomenon is rarely – or not at all – addressed in grammars. Adjectival participles are attributively or predicatively used adjectives derived from past participle forms. To form them, the adjective inflectional ending is simply appended to the past participle form: *geschriwwen* > *e geschriwwen-t Gedicht*, ‘written > a written poem’, *gereest* > *gereest-e*²⁵ *Kilometer*, ‘travelled > travelled kilometres’. Regarding possible variation, Schanen and Zimmer (2012: 124) note: “-e(n) may be added to the /t/ marking the end of the past participle as an attributive adjective: *e luesgekacht-ent Ee* ‘a slowly boiled egg’, [. . .] *déi verwinnt(e) Kanner* ‘the spoiled children’”.²⁶ This statement about variation is again quite vague and undifferentiated. In short, many questions remain. For example, can the inflectional ending always be appended, or are there restrictions? However, one aspect becomes apparent: the variation is limited to adjectives derived from regular past participle forms because only these end in -t.

Let us now examine the variation paradigm, which can be compiled using the grammatical descriptions and the results that are discussed later in more detail. The variation of this phenomenon is not limited to one case or less than three genders. In the NOM/ACC case, we have two competing variants for the masculine, feminine and plural. In each case, there is one variant with exclusive adjectival inflectional ending (-en, -Ø or assimilated -t) and one with additional en-inflectional ending.²⁷

However, this additional ending is not appended but rather inserted between the stem and the adjective inflectional ending (e.g., *gefëllt-en / gefëllt-en-en*

²⁵ The final -n is dropped because of the n-rule – s. footnote 12.

²⁶ “[. . .] -e(n) peut s’ajouter au /t/ final de la marque d’un participe II adjectivé en fonction d’épithète: *e lues gekacht-ent Ee*, [. . .] *déi verwinnt(e) Kanner*.

²⁷ In this phonological context (plosive + schwa-ə + sonorant after a stressed syllable), words are often reduced by one syllable because of the elision of the schwa, regardless of the part of speech, and especially at allegro speech rate. In other words, the schwa-ə within the additional inflectional ending can be erased during articulation. *gefëllt-enen* > *gefëllt_nen*. More details can be found in Conrad (2017).

Table 5: The variational paradigm of the adjectival participle in Luxembourgish.

CASE	GENDER/NUMBER									
	SG						PL			
	M		N		F					
NOM/ACC	<i>gefëllt</i>	<i>-en</i>	<i>gefëllt</i>	<i>-(t)</i> ²⁸		<i>gefëllt</i>	<i>-Ø</i>			
	<i>gefëllt</i>	<i>-en</i>	<i>gefëllt</i>	<i>-(t)</i>	<i>-en</i>	<i>gefëllt</i>	<i>-en</i>			
			<i>gefëllt</i>	<i>-en</i>	<i>-t</i>					
DAT.WEAK		<i>gefëllt</i>		<i>-en</i>						
		<i>gefëllt</i>	<i>-en</i>	<i>-en</i>	<i>gefëllt</i>	<i>-er</i>	<i>gefëllt</i>	<i>-en</i>		
DAT.STRONG		<i>gefëllt</i>		<i>-em</i>	<i>gefëllt</i>	<i>-en</i>	<i>-er</i>	<i>gefëllt</i>	<i>-en</i>	<i>-en</i>
		<i>gefëllt</i>	<i>-en</i>	<i>-em</i>						
‘stuffed’										

[*masc.*], *gefëllt-Ø* / *gefëllt-en-Ø* [*fem.*]). Neutrals are again characterised by the variation of three different variants. A first one with an assimilated adjectival inflectional ending *-t* (*gefëllt[-t]*), a second one with assimilated adjectival inflectional ending *-t* and appended *en*-inflectional ending (*gefëllt[-t]-en*) and a third one with inserted *en*-inflectional ending and attached adjectival inflectional ending *-t* (*gefëllt-en-t*). There is also variation within the dative case. Here again, one variant exclusively with an adjectival inflectional ending (*-en*, *-em* or *-er*) competes with another with an additionally inserted *en*-inflectional ending (e.g., *gefëllt-er* / *gefëllt-en-er* [*fem.*]). Moreover, for the masculine, the adjectival inflectional ending differs between weak (*-en*) and strong (*-em*) dative forms (*gefëllt-en* / *gefëllt-en-en* [weak], *gefëllt-em* / *gefëllt-en-em* [strong]). Although the variation is consistently expressed by the absence or presence of the same linguistic material (*en*-suffix or *-infix*), the entire adjective paradigm is affected by this variation. This leads to the conclusion that compared with the variation paradigm of the superlative, we are dealing with a quite complex paradigm.

4.5 Adjectival participle – Inter-individual variation

Following the above description of the variational paradigm, I would like to proceed with the analysis of the adjectival participle and shed light initially on IEV and, subsequently, on an IAV analysis of this phenomenon.

²⁸ The adjectival inflectional ending *-t* is here assimilated to the final *t* of the stem.

In the context of an IEV analysis, three exemplary results should again serve as a starting point.

(3) German sentence:

Das ist leicht verdientes Geld.

Luxembourgish translation:

- a. *Dat ass liicht verdéngt(-en)-t Geld.*
 This is easy earned-ADJ-NOM.N money
- b. *Dat si liicht verdéngt(-en)-Ø Suen.*
 This is easy earned-ADJ-NOM.PL money
 ‘This is easy-earned money’.

(4) German sentence:

In seiner verdienten Pause setzt er sich immer in den Garten.

Luxembourgish translation:

- A senger verdéngt(-en)-er Paus sëtzt*
 In his deserved-ADJ-DAT.F break sits
hien sech ëmmer an de Gaart.
 he himself always in the garden
 ‘In his deserved break he always sits in the garden.’

(5) German sentence:

Der gut gelaunte Elektriker hat mir zugewunken.

Luxembourgish translation:

- De gutt gelaunt(-en)-en Elektriker huert mir zougewonk.*
 The good humoured-ADJ-NOM.M electrician has me waved
 ‘The good-humored electrician waved to me.’

In these three sentences, the grammatical context was varied to identify not only possible social, but also linguistic constraints. *Verdéngt(-en)-t*, ‘earned’, in (3) is an attributively used adjective, which in the NP.NOM refers to (and agrees with) a neutral singular or masculine plural noun. In (4), we are dealing with the same attributively used lexeme, but in the NP.DAT, it refers to (and agrees with) a feminine singular noun. Finally, the attributively used adjective *gutt gelaunt(-en)-en* ‘good-humoured’ in (5) appears in the NP.NOM together with a masculine singular noun. For this reason, in (3) a variant with assimilated *t*-ending, assimilated *t*-ending and *en*-Suffix or an *en(-t)*-suffix is possible (*verdéngt* vs. *verdéngt-en* vs. *verdéngt-en-t Geld* / *verdéngt* vs. *verdéngt-e Suen*), whereas in (4) and (5), a variant with and one without an infix (*verdéngt-er* vs. *verdéngt-en-er Paus* / *gutt gelaunt-en* vs. *gutt gelaunt-en-en Elektriker*) are competing with each other.

A glance at Figure 11 shows that in sentence (3), the variant with the *en*-inflectional ending (*verdéngt[-t]-en* or *verdéngt-en-t*) is more frequently used (94.7%) than the variant with assimilated *t*-ending (5.3%). It also becomes clear that the *en*-affix occurs more often in combination with an ending *-t*, marking once again a neutral gender (86.9%). The question arises again whether and, if so, to what extent social factors influence this type of variation. As for the superlative, the factors of age, gender, local origin, level of education and Luxembourgish as mother tongue were taken into account. The apparent-time analysis (Figure 12) shows that the distribution of variants is not equal in all age groups.

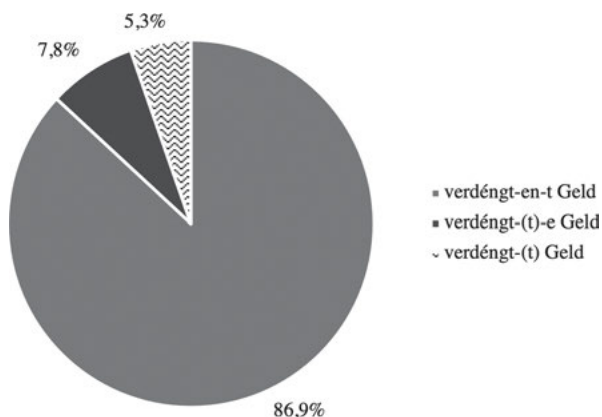


Figure 11: Overall distribution of the inflectional endings for the adjectival participle *verdéngt* [Geld.Sg.N.NOM], ‘earned’ (n=206).

Although the use of the assimilated *t*-ending generally increases and the use of the assimilated *t*-ending and *en*-inflectional ending slightly decreases with decreasing age, the values are on a nonrising line. Therefore, it is not surprising that the chi-squared test ($p = 0.402$) provides no indication for age as an influencing factor. Furthermore, non-native speakers (80%) and men (89.2%) tend to use the *en*-inflectional ending less frequently than native speakers (95%) and women (96.5%). Although these trends indicate a connection between gender or mother tongue and the choice of inflectional ending, the chi-squared test only indicates a significant correlation between the choice of the variant and mother tongue.²⁹ To gain a better overview of the variation and possible social constraints, we once again consider another result: *verdéngt Paus*, ‘earned break’, in (4).

²⁹ Gender: $p=0.791$ and mother tongue: $p<0.001$.

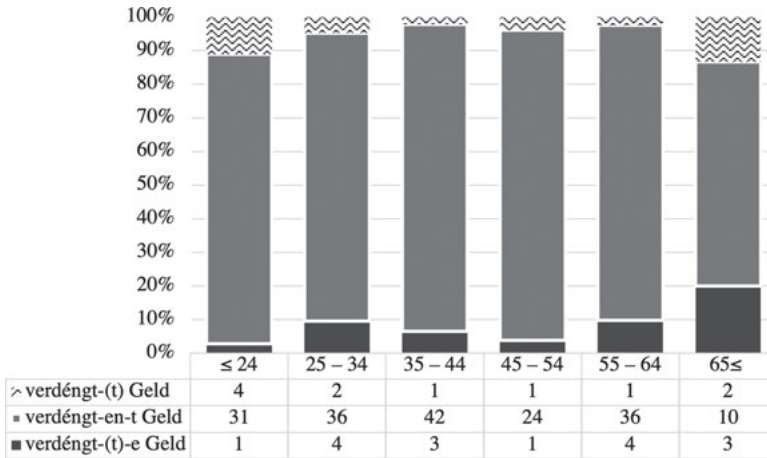


Figure 12: The apparent-time analysis of the inflectional endings for the adjectival participle *verdéngt* [Geld.SG.N.NOM], ‘earned’ (n=206).

As Figure 13 shows, the choice of the variant differs from that shown in Figure 11. The variant without an infix is more frequently used (64.9%) than the variant with an *en*-infix (35.1%). If we examine the distribution by age (Figure 14), the picture is the same as above. The frequencies vary between age groups, but there is no statistically relevant correlation between age and the choice of variant ($p = 0.645$). Furthermore, the factors Luxembourgish as mother tongue and gender also play a role. Non-native speakers (12.5% and 7.7%) and men (16.8% and 27.6%) tend to use the *en*-inflectional ending less frequently than native speakers (21% and 36%) and women (22.2% and 39.1%). However, no statistically relevant corre-

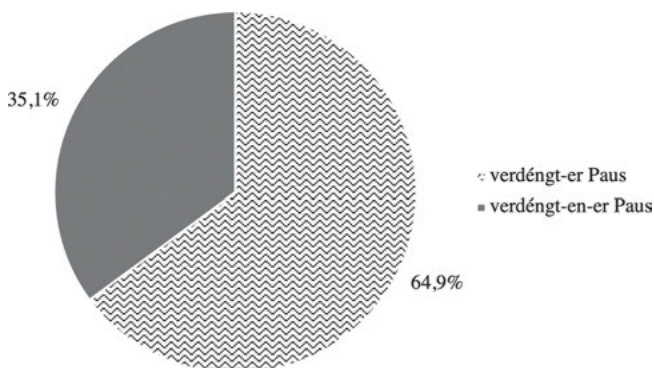


Figure 13: Overall distribution of the inflectional endings for the adjectival participle *verdéngt* [Paus.SG.F.DAT], ‘earned’ (n=356).

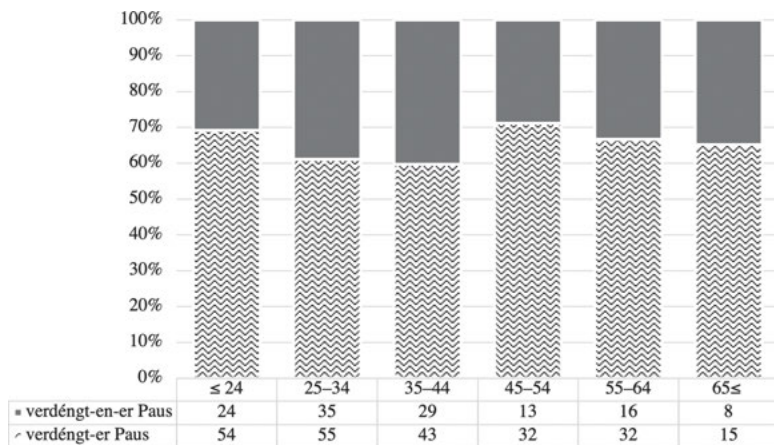


Figure 14: The apparent-time analysis of the inflectional endings for the adjectival participle *verdéngt* [Paus.Sg.F.DAT] ‘earned’ (n=356).

lation can be found here. Once again, it becomes apparent that social factors play only a marginal role in the choice of the variant.

At a further stage, possible linguistic constraints will be investigated. For the analysis, we consider all three sentences but initially come back to sentence (3). Since *Geld* cannot be translated only as *Geld.N.Sg* but also as *Suen.M.Pl*, we can examine the variation in the same context with the masculine singular in contrast to neutral plural adjectives.

As the distribution in Figure 15 shows, the *en*-inflectional ending also predominates 65.1% of the time, although the variant with assimilated *t*-ending occurs somewhat more frequently than for the neutral singular adjective. Even

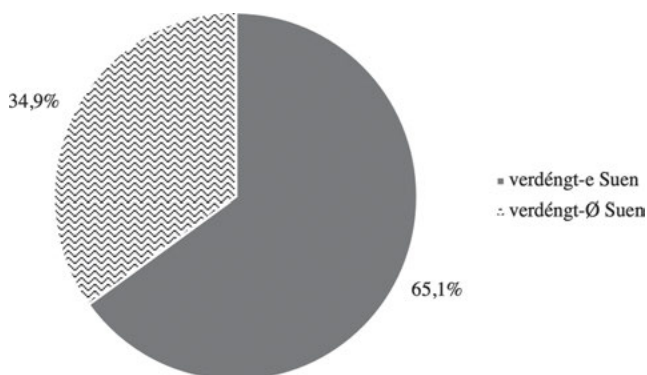


Figure 15: Overall distribution of the inflectional endings for the adjectival participle *verdéngt* [Suen.PL.M.NOM], ‘earned’ (n=83).

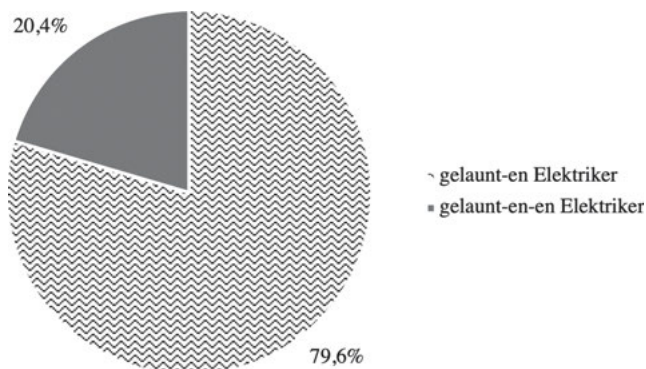


Figure 16: Overall distribution of the inflectional endings for the adjectival participle *gelaunt* [Elektriker.SG.M.NOM], ‘humoured’ (n=401).

though this would suggest a correlation between the choice of variant and gender or number, further results do not support this hypothesis. Other possible linguistic constraints, such as word stress, grammatical use, animation of the noun in the same NP or *n*-rule, could not be proven in this context.

It is noticeable, however, that the frequencies of the variants vary considerably depending on the linguistic context (gender, number and case). As Figures 11 and 15 show, the variant with an additional *en*-inflectional ending in sentence (3) (N.NOM. SG, M.NOM.PL) ranges between 65.1% and 94.7%. The distribution is different for sentences (4) and (5), that is, for singular feminine adjectives in the dative and masculine singular in the nominative. As becomes apparent in Figures 13 and 16, the variant without the additional infix is the main variant here (64.9% and 79.6%).

Considering the frequencies of all variants in the corpus, we can differentiate five categories of adjectives (Figure 17). From category 1 to 5, the frequency of the variant with an additional inflectional ending decreases. In category 4 and 5 it usually no longer constitutes the main variant. Category 1 contains all adjectives, varying between assimilated *t* and *en*-suffix respectively *en*-infix and *-t*, that is, neutral in the NOM/ACC case (*gefällt[-t]* vs. *gefällt[-t]-en* vs. *gefäll-en-t*). The variant with additional linguistic material occurs here clearly more often than the variant without the *en*-affix (Figure 11). Category 2 includes all adjectives varying between a zero inflectional ending and additional *en*-infix (Figure 13) but is in general slightly less frequent than in category 1. Adjectives varying between an *-em* inflectional ending and *-en-em* ending, that is, masculine and neutral with strong dative marking (*gefällt[-en]-em*), form category 3. The frequency of the variant with an additional inflectional ending is slightly inferior to category 2. Category 4 includes all adjectives varying between the existing *-er*-inflectional ending and additional *en*-infix, that is, feminine with a strong dative marking

(*gefëllt[-en]-er*). Here, we are also dealing with two different inflectional endings, but the frequency of the variant with the infix is lower than that of category 3 and does not exceed 35%. The variant without a further inflectional ending constitutes the main variant here. This distribution is even clearer in category 5. This category contains all adjectives, varying between the existing *en*-inflectional ending and additional *en*-infix (*gefëllt[-en]-en*). As Figure 14 shows, the variant without an additional inflectional ending usually clearly predominates (71%–93%).

Category 1	Category 2	Category 3	Category 4	Category 5
• <i>gefëllt-(t)-en-(t)</i> (NOM/ACC, N SG)	• <i>gefëllt-en-Ø</i> (NOM/ACC, F SG, PL)	• <i>gefëllt-en-em</i> (DAT.STRONG, M, N SG)	• <i>gefëllt-en-er</i> (DAT, F)	• <i>gefëllt-en-en</i> (NOM/ACC, M SG, DAT.WEAK, M, N SG, DAT, PL)

Figure 17: The five categories of adjectival participles based on the frequency of the variants.

All in all, we can conclude that none of the tested linguistic or social constraints play a significant role in the choice of the variants. Furthermore, the apparent-time analysis provides no indication for language change. Nevertheless, the analysis of the frequencies makes it possible to reveal a certain systematicity in the variation. Another track that can take us further in the context of this analysis opens up by looking at grammar, that is, the same paradigm for adjectival participles derived from strong verbs.

Table 6: The paradigm of adjectival participles derived from strong verbs.

CASE	GENDER/NUMBER				
	SG			PL	
	M	N	F		
NOM/ACC	<i>geschriwwen</i> <u><i>-en</i></u>	<i>geschriwwen</i> <u><i>-t</i></u>	<i>geschriwwen</i>	<i>geschriwwen</i> <u><i>-Ø</i></u>	
DAT.WEAK	<i>geschriwwen</i> <u><i>-en</i></u>		<i>geschriwwen</i>	<i>geschriwwen</i> <u><i>-er</i></u>	<i>geschriwwen</i> <u><i>-en</i></u>
DAT.STRONG	<i>geschriwwen</i> <u><i>-em</i></u>				
NOM/ACC	‘written’				

As Table 6 shows, the paradigm regarding inflectional endings that mark number, gender and case is identical to that of adjectives based on a weak verb. However, because the strong verbs in this construction end in *-en*, the adjectives end in a combination of *-en* (suffix of strong verb inflection) and the respective adjective inflection ending (marked underlined). Therefore, it is reasonable to assume that

the presence of an additional inflectional ending *-en*, which is inserted between the stem (based on a weak past participle form and, therefore, ending in *-t*) and the adjective inflectional ending, is due to analogical innovation (Fertig 2013).

geschriwwen > geschriwwen-en = gefällt_ > gefällt-en-en

In addition, this analogical innovation is favoured by the fact that the verb classes in Luxembourgish overlap and are generally quite unstable (Dammel and Nowak 2011). If we assume this analogical innovation and reconcile it with the frequencies of the respective variants in the IEV analysis, the following can be deduced: There is evidence that the analogical innovation first appears where, on the surface at least, no inflectional ending is tangible. In the second stage, it extends to those forms in which an inflectional ending is already apparent on the surface but that differ in shape from the *en*-affix. In the final stage, the innovation also extends to the forms in which the additional *en*-inflectional ending creates a duplication of two *en*-suffixes. Figure 18 illustrates these deduced stages of analogical change.

All in all, the analysis of inter-individual variation does not reveal any linguistic or social constraints. Furthermore, the apparent-time analysis does not allow any conclusions to be made regarding language change. However, the analysis shows that it tends to be a highly variable phenomenon, with all age groups varying similarly, either strongly or slightly. However, a look into the grammar opened up a track that can lead to the assumption of analogical change. Considering the results again against this background, they seem to support this hypothesis, at least in principle.

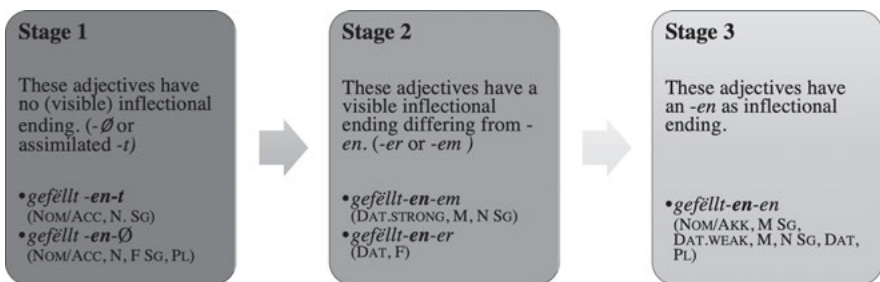


Figure 18: The stages of analogical change.

4.6 Adjectival participle – Intra-individual variation

Based on the results of the IEV analysis, the following analysis will focus on IAV as an expression of language change. The question arises whether the analysis

of IAV – although clear indications are lacking in the analysis of IEV – allows for such conclusions. Furthermore, if IAV is proven, we will also look for evidence for the other two manifestations.

At this point, we will once again use the Twelve Speaker sample. Since we first want to identify whether and to what extent the speakers vary, we focus in the first stage on the general tendencies of the speakers in the choice of morphological variants for all analysed adjectival participles. Once again, the average values are used for the analysis. The value -1 corresponds to the zero suffix/infix and 1 to the *en*-suffix/infix.

The closer the speakers approach the value 0 , the more they vary in their choice of the variants. Figure 19 shows a similar picture as for the superlative. Here, again, the different tendencies in the choice of the morphological variant are apparent, whereby the speakers sometimes differ considerably (M4: -0.7 vs. W1: 0.4). The speakers mentioned before (M4 and W1) show quite clear tendencies in the choice of their variants, whereas others vary strongly. So once again, we are dealing with IAV characterised by different variation intensities and individual tendencies.

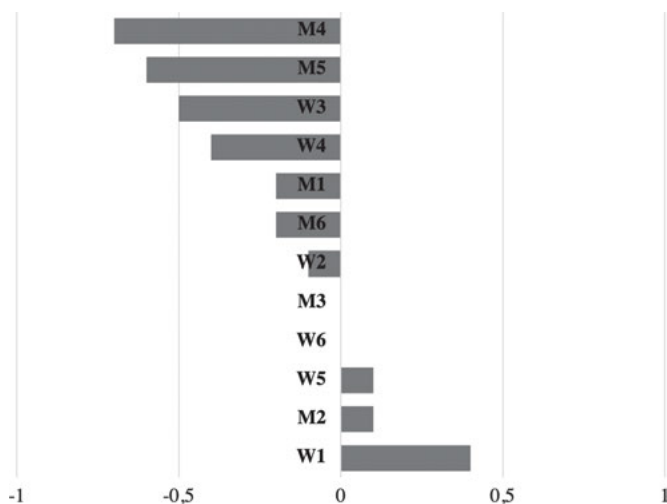


Figure 19: Tendencies of the participants in their choice of the inflectional ending for all analysed adjectival participles.

In a next stage, IAV will be examined more closely. For this purpose, we first focus briefly on the different adjectives in the corpus. It is apparent that some items show less and others more variation between the speakers of the sample of those users with many recordings. Taking a closer look at these items confirms

the result of the quantitative analysis. Similarly, the items affected by the analogical innovation in stage 3 vary less than those that are involved in stages 1 and 2. If we now focus on the speakers and before the background of analogical change, it becomes clear that some are more conservative and others more innovative regarding this phenomenon. Speakers such as M5 (or M4), for example, use the more innovative morphological variant only in one case: *verdängt-ent Geld*, ‘earned money’. This is, as already mentioned, a variable that is apparent in the first stage of analogical innovation. Other speakers, such as W2, also behave more conservatively but use the more innovative variant also for variables apparent in stage 2 (*verdängt-en-er Paus* ‘earned break’). Still other participants (e.g. M2) can be characterised as more innovative because they use the more innovative variant almost continuously for the variables apparent in stages 1 and 2 but also regularly use it for other variables (stage 3). Table 7³⁰ gives an overview of the IAV of the mentioned speakers (M5, W2, M2 and W1).

It becomes clear that speakers who use the more innovative variant for variables apparent in stage 3 usually also do so for those from stages 1 and 2. The same applies to the variables involved in stage 2 in relation to stage 1. However, this does not mean that the speakers are absolutely consistent in their choice of variant. Here is an example to make this clearer. Speaker M2, who has been classified above as rather innovative in his choice of variants, uses more innovative forms for variables that are apparent in all three stages but does not do so across the board. For the variables apparent in stage 1, he is still consistent, but this changes for those apparent in stage 2 and 3. For the variables involved in stage 2, he chooses the more innovative variant 50% of the time (two out of four cases); for those apparent at stage 3, though, this is only true in 38% of the cases (three out of eight). This tendency of decreasing consistency from stage to stage can be demonstrated for (almost) all speakers in the sample, supporting the thesis of IAV as an expression of language change. Where ongoing language change takes place, there is usually more variation, that is, less consistency in the choice of a variant at the individual level. As this applies to IEV and groups of speakers or language communities and because Lowie (2017) and Bülow, Scheutz, and Wallner (2019) also show that language change leads to IAV, this is certainly conceivable. All in all, this analysis shows that IAV is (among other things) an expression of language change at the individual level. Not only can IAV be understood as a general indication of ongoing language change, it also shows that group-related language development processes can be found at the individual level.

30 There are some blanks, either because the tasks have not been completed or because the translation cannot be considered to be a variant of the variable (i.e., in the case of paraphrases).

Table 7: Overview of the intra-individual variation in the adjectival participle paradigm of the speakers M5, W2, M2 and W1.

Lux.	Engl.	M5	W2	M2	W1
iwwerfëllt (M.Pl.DAT)	overfilled	iwwerfëllten	iwwerfëllten	iwwerfëlltenen	iwwerfëllten
wuelverdängt (M/F.Sg.DAT)	well deserved	wuelverdängt	wuelverdängt	wuelverdängt	wuelverdängt
gefëllt (M.Sg.Acc)	stuffed	gefëllten	gefëlltenen	gefëlltenen	gefëlltenen
sougenannt (M.Sg.Nom)	so-called	sougenannt	sougenannt	sougenannt	sougenannt
gelaunt (M.Sg.Nom)	humoured	gelaunt	gelaunt	gelaunt	gelaunt
ausverkaaft (M.Sg.DAT)	sold out	ausverkaaft	ausverkaaft	ausverkaaft	ausverkaaft
berüümt (F.Sg.Nom)	famous	berüümt	berüümt	berüümt	berüümt
gewielt (N.Sg.DAT)	elected	gewielt	gewielten	gewielten	gewielten
welbekaant (M.Sg.Acc)	world-renowned	welbekaant	welbekaant	welbekaant	welbekaant
selwergemaacht (N.Sg.DAT)	self-made	selwergemaacht	selwergemaacht	selwergemaacht	selwergemaacht
verdängt (F.Sg.DAT)	deserved	verdängt	verdängt	verdängt	verdängt
verdängt (N.Sg.Nom)	deserved	verdängt	verdängt	verdängt	verdängt
verdängt (M.Pl.Nom)	deserved	verdängt	verdängt	verdängt	verdängt
Selwergemaacht (N.Sg.Acc)	self-made	Selwergemaacht	Selwergemaacht	Selwergemaacht	Selwergemaacht
gerappt (M.Sg.Nom)	rubbed				gerappt
Ugekloten (M.Sg.Nom)	accused	Ugekloten	Ugekloten	Ugekloten	Ugekloten

Furthermore, there are indications that individual preferences play a role in the choice of variants (cf. Bülow, Büchler, Rawyler, Schneider, and Britain in this volume). For this purpose, I want to refer to the IAV of speaker W1 as an example (Table 8). Although the approach just explained describes the variation patterns of the speakers of the sample as inherently regular, that is, logical in the context of language change, W1 completely falls outside this pattern. W1 uses the more innovative form for the adjectives that are apparent at stages 2 and 3 and the more conservative form for those apparent at stage 1.

Thus, she does not follow the pattern just described of stage 1 > stage 2 > stage 3. It remains open whether she processes the analogical innovation pattern differently from others (for example, stage 3 > stage 2 > stage 1) or whether this is a form of variation that expresses individual preferences. To answer this question reliably, further analyses are necessary. It is important to note that although speaker W1 differs significantly from the others in her IAV, she is nevertheless quite consistent within her paradigm (Table 8).

All in all, within the adjectival participle, two IAV manifestations were outlined: IAV as an expression of language change on the individual level and of individual linguistic preferences. Particularly in this area and in relation to the language change hypothesis, further research is needed.

Table 8: The adjectival participle paradigm of speaker W1.

CASE	GENDER/NUMBER								
	SG			PL					
	M	N	F						
NOM/ACC	<i>gefällt</i>	<i>-en</i>	<i>-en</i>	<i>gefällt</i>	<i>-(t)</i>	<i>gefällt</i>	<i>-∅</i>		
DAT.WEAK	<i>gefällt</i>	<i>-en</i>	<i>-en</i>	<i>gefällt</i>	<i>-en</i>	<i>-er</i>	<i>gefällt</i>	<i>-en</i>	<i>-en</i>
DAT.STRONG	<i>gefällt</i>	<i>-en</i>	<i>-em</i>						
NOM/ACC	'stuffed'								

5 Synthesis

This section summarises the results and describes them against the background of further reflections on IAV.

Regarding the morphological variation of the superlative, the linguistic constraints were detected based on an IEV analysis. Age and mother tongue were identified as the influencing social factors. The apparent-time analysis did not

provide any evidence for language change but showed that younger people vary more than older ones. Therefore, the IAV analysis tended to focus on IAV as an expression of individual linguistic preferences and linguistic insecurities. The qualitative analysis showed at first that part of the IAV cannot be defined as such because it involves the implementation of linguistic constraints (in 87% of cases). Nevertheless, it was also possible to identify IAV that cannot be explained linguistically. Here, it turned out that, as expected, IAV as an expression of linguistic insecurity and individual linguistic preferences plays a major role. As there was no indication for language change in the IEV analysis, the overall analysis cannot confirm that IAV always indicates ongoing language change (Lowie 2017: 131).

The situation is somewhat different for the adjectival participle. No linguistic or social constraints could be retained in the IEV analysis. In general, however, it emerged that this phenomenon is a highly variable feature, whereby the variants vary greatly in their frequency. Even though the apparent-time analysis does not allow for statements on language change, evidence for analogical change could be found via an alternative track. A look into the paradigm of adjectives derived from strong verbs allowed for this hypothesis. Regarding IAV, therefore, language change at the individual level was in the foreground. Against the background of the above-mentioned hypothesis, the IAV analysis provided evidence for this manifestation of IAV. Based on this analysis, it is possible to go a step further, as Lowie (2017) postulates and Bülow, Scheutz, and Wallner (2019) show: IAV not only serves as a general indicator for ongoing language change, but it makes the grammaticalisation path of a phenomenon traceable at the individual level. It is particularly striking that there appears to be no correlation with age, at least in this sample (also in the IEV analysis), which is normally given in the context of the language change processes. In turn, this shows how important the real-time panel analyses postulated by Bülow (unpublished) are. However, it also becomes clear that individual linguistic preferences play a significant role here either. This is evident not only through partial deviations, but also through individual variation paradigms. Thus, this chapter showed that IAV in different manifestations plays a role in Luxembourgish, providing empirical evidence that group-related developmental tendencies can indeed manifest themselves at the individual level. Furthermore, it became clear that the analysis of IAV carried out here, especially in the field of Luxembourgish variationist linguistics, represents a potential way to learn more about the variation of a specific phenomenon. Since the data situation makes it difficult to operate with older comparative data – that is, a research design including real-time analysis are projects for the future – this combination of IEV and IAV analysis offers a fruitful basis for a more detailed study of variation in Luxembourgish.

6 Conclusion

All in all, the current chapter described and analysed the morphological variation of the superlative and adjectival participle both from the perspective of IEV and IAV. It was possible to record the variation for the first time and determine some linguistic constraints. Through the analysis of IAV, it was also possible to make additional statements on language change, individual linguistic insecurities and individual linguistic preferences. The results show how fruitful a combination of these two perspectives is for a study of variation. Of course, the present chapter provides further connecting factors, for example, regarding the question of whether situation-dependent IAV can actually be excluded. Although it seems rather improbable because of the absence of manipulation of the situation in the setting, it cannot be completely excluded because it was not consciously integrated into the design. Here, it might be possible to develop research designs that consciously manipulate the situational setting or perceptual-linguistic studies that analyse the production and perception of the variants investigated. This applies not only to the superlative, but also to the adjectival participle. Although there is evidence here for IAV as an expression of language change, a socio-pragmatic function of the variation according to Fertig (2013: 7) cannot be entirely excluded: “Although many overt innovations are undoubtedly produced unwittingly based strictly on the grammars constructed by the innovators, we know that some analogical innovations are produced intentionally – lexical blends being the most obvious example [. . .], some instances of folk etymology being another”. Moreover, further analyses within the IEV analysis are desirable. In this context, the influence of different linguistic constraints could, for example, be examined even more systematically.

References

- Beckner, Clay, Richard Blyth, Joan Bybee, Morten H. Christiansen, William Croft, Nick Ellis, John Holland, Jinyun Ke, Diane Larsen-Freeman & Tom Schoenemann. 2009. Language is a complex adaptive system: Position paper. *Language Learning* 59(1). 1–26.
- Bell, Allan. 1984. Language style as audience design. *Language in Society* 13(2). 145–204.
- Bell, Alan. 2014. *The guidebook to sociolinguistics*. Malden: Wiley-Blackwell.
- Bruch, Robert. 1955. *Précis populaire de grammaire luxembourgeoise : Luxemburger Grammatik im volkstümlichen Abriss*. Luxemburg: Editions de la Section de Linguistique de l'Institut grand-ducal.
- Bülöw, Lars, Hannes Scheutz & Dominik Wallner. 2019. Variation and change of plural verbs in Salzburg's base dialects. In Antje Dammel & Oliver Schallert (eds.), *Morphological variation: Theoretical and empirical perspectives*, 95–134. Amsterdam: Benjamins.

- Bülow, Lars. unpublished. *Inter- und intra-individuelle Variation im Wandel der bairischen Dialekte Österreichs: Empirische Befunde und konzeptionelle Überlegungen*. Preface to the Habilitation Thesis.
- Bülow, Lars & Simone E. Pfenninger. 2021. Introduction: Reconciling approaches to intra-individual variation in psycholinguistics and variationist sociolinguistics. In: *Linguistics Vanguard* 7(s2), 1–10.
- Bybee, Joan. 2015. *Language change*. Cambridge: Cambridge University Press.
- Conrad, François. 2017. Schwa-Elision und die Wortprosodie des Luxemburgischen. *Linguistik Online* 80(1). 21–49.
- Dammel, Antje & Jessica Nowak. 2011. “Schwarke” Verben? Ein flexionsmorphologisches Spannungsfeld im Kontrast: Luxemburgisch-Deutsch. In Peter Gilles & Melanie Wagner (eds.), *Linguistische und soziolinguistische Bausteine der Luxemburgistik* (Mikroglottika. Minority language studies 4), 25–51. Frankfurt am Main: Peter Lang.
- Eckert, Penelope. 2000. *Linguistic variation as social practice. The linguistic construction of identity in Belten High*. Malden: Blackwell Publishers.
- Eckert, Penelope & John Rickford (eds.). 2001. *Style and sociolinguistic variation*. Cambridge: Cambridge University Press.
- Entringer, Nathalie. in press. *Vun „iwwerfëlltene Bussen“ bis hin zu de „beschte Witzer“ [From “iwwerfëlltene Bussen” to “beschte Witzer”]. Morphologische Variation im Luxemburgischen – eine variations- und perceptionslinguistische Studie*.
- Entringer, Nathalie, Peter Gilles, Sara Martin & Christoph Purschke. 2021. Schnëssen. Surveying language dynamics in Luxembourgish with a mobile research app. *Linguistic Vanguard*.
- Fehlen, Fernand & Andreas Heinz. 2016. *Die Luxemburger Mehrsprachigkeit. Ergebnisse einer Volkszählung*. Berlin & New York: Mouton de Gruyter.
- Fertig, David. 2013. *Analogy and Morphological Change*. Edinburgh: University Press.
- Gilles, Peter & Claudine Moulin. 2003. Luxembourgish. In Ana Deumert & Wim Vandenbussche (eds.), *Germanic standardizations: Past to present*, 303–329. Amsterdam & Philadelphia: Benjamins.
- Gilles, Peter. 2006. Phonologie der *n*-Tilgung im Moselfränkischen (‘Eifler Regel’) Ein Beitrag zur dialektologischen Prosodieforschung. In Claudine Moulin & Damaris Nübling (eds.), *Perspektiven einer linguistischen Luxemburgistik. Studien zu Diachronie und Synchronie* (Germanistische Bibliothek 25), 29–68. Heidelberg: Winter.
- Labov, William. 2006 [1966]. *The social stratification of English in New York City*. Cambridge: Cambridge University Press.
- Leemann, Adrian, Marie-José Kolly & David Britain. 2018. The English Dialects App. The creation of a crowdsourced dialect corpus. *Ampersand. An international Journal of General and Applied Linguistics* 5. 1–17.
- Lowie, Wander. 2017. Lost in state space? Methodological considerations in complex dynamic theory approaches to second language development research. In Lourdes Ortega & ZhaoHong Han (eds.), *Complexity theory and language development: In celebration of Diane Larsen-Freeman*, 123–141. Amsterdam & Philadelphia: Benjamins.
- Martin, Sara. 2019. Hatt oder si? Neuter and feminine gender assignment in reference to female persons in Luxembourgish. *STUF – Language Typology and Universals. Sprachtypologie und Universalienforschung* 72(4). 573–602.
- Newton, Gerald. (ed.). 1996. *Luxembourg and Lëtzebuergesch. Language and communication at the crossroads of Europe*. Oxford: Clarendon Press.

- Raumolin-Brunberg, Helena & Arja Nurmi. 2011. Grammaticalization and language change in the individual. In Heiko Narrog & Bernd Heine (eds.), *The Oxford handbook of grammaticalization*, 251–262. Oxford: Oxford University Press.
- Schanen, François & Jacqui Zimmer. 2012. *Lëtzebuergesch Grammaire [Luxembourgish Grammar]. Grammaire luxembourgeoise*. Esch-sur-Alzette: Schortgen.
- Schmidt, Jürgen Erich & Joachim Herrgen. 2011. *Sprachdynamik. Eine Einführung in die moderne Regionalsprachenforschung*. Berlin: Erich Schmidt.
- Tagliamonte, Sali A. 2012. *Variationist sociolinguistics. Change, observation, interpretation*. Hoboken: John Wiley & Sons.
- Weinreich, Uriel, William Labov & Marvin I. Herzog. 1968. Empirical foundations of a theory of language change. In Winifred P. Lehmann & Yakov Malkiel. (eds.), *Directions for historical linguistics*, 95–188. Austin: University Texas Press.



Part III: Historical dimension

Anita Auer

Of Zibele and Bölle: Patterns of Language Variation in the Swiss Language Island New Glarus (North America)

Abstract: Patterns of language variation on the level of the community and of individual speakers are central to the study of variationist sociolinguistics. These patterns are also important in the study of language contact and change in that they can shed light on the factors that drive the outcomes of contact. Embedded in the fields of historical sociolinguistics and heritage linguistics, the current chapter investigates the patterning of variation, particularly intra- and inter-individual variation, in the speech of Swiss heritage speakers in North America. The investigation is based on recordings made by Brian Lewis in the 1960s of selected heritage speakers from New Glarus in Wisconsin, who were born in the late nineteenth and early twentieth centuries. The focus on intra-individual and inter-individual variation of the heritage speakers allows us to shed light on the development of a Swiss heritage dialect, and particularly on processes like language maintenance and shift and possible dialect levelling in the diaspora.

This chapter provides socio-historical background information on the settlement and dialect/language contact scenarios of the original Glarner migrants. Thereafter, based on the Lewis recordings, intra-speaker and inter-speaker variation related to lexical, phonological and morphological variables of eleven heritage speakers will be closely examined. To explain the intra- and inter-individual variation in the speaker, the homeland dialect, the settlement history, available schooling, contact scenarios as well as the data collection method are being considered. All of these aspects are relevant in order to better understand patterns of variation in the study of heritage language/dialect development in the past.

Keywords: Swiss German dialect, heritage linguistics, historical sociolinguistics, New Glarus, dialect contact, intra- and inter-individual variation

Acknowledgement: Many thanks to the anonymous reviewer and the editors of this volume for their constructive and helpful feedback on an earlier version of this paper. All remaining shortcomings are my own.

<https://doi.org/10.1515/9783110743036-009>

1 Introduction

Variationist sociolinguistics, as initiated by Labov in the 1960s, has traditionally focused on patterns of linguistic variation in monolingual communities with the aim of explaining social reasons for language variation and change as well as attitudes to different variants found in the language. Apart from the community, the individual speaker who has learnt and reproduced the community language plays an important role in the investigation of processes of linguistic change. Different waves of variationist studies have therefore paid attention to inter- and intra-individual variation, the latter of which is rooted “in earlier studies of style (Labov 1966), speech accommodation (cf. Giles 1973; Giles and Powesland [1975] 1997), code switching (Blom and Gumperz [1970] 2000), and audience design (Bell 1984)” (Eide and Sollid 2011: 330). While earlier waves of variationist analytic practice found the explanation for variation in social categories and the speech community, the third wave considered the explanatory force for variation to be social practice and thus the construction of the speakers’ identities in interaction with other speakers in different social environments (Eckert 2008). Since the beginnings of variationist sociolinguistics, variationist concepts and paradigms, such as variation patterns, have also started to influence other linguistic fields. For instance, intra-individual variation has already been focussed on in historical sociolinguistic studies (see for instance Auer 2015; Hernández-Campoy 2016; Schiegg 2016, 2018) as well as in contact and heritage linguistic studies (Sánchez-Muñoz 2010; Eide and Hjelde 2015; Bousquette and Brown 2018; Nagy et al. 2018; Cognola et al. 2019). In line with this development, the original focus on the monolingual community has also been broadened to bi- and multilingual settings and the role of variation patterns therein (cf. Meyerhoff and Nagy 2008; Léglise and Chamoreau 2013).

The current study, which is embedded in the fields of historical sociolinguistics and heritage linguistics, aims to investigate intra-individual and inter-individual variation within a new data-set, notably recordings from the 1960s of Swiss heritage speakers in North America that were born in the late nineteenth and early twentieth centuries. During this so-called ‘Age of Mass Migration’ (1850–1920s), many Europeans – and many Swiss amongst them – left their home countries for North America in search of betterment, i.e. advancing both on a social and an economic level (cf. Clark 1972: 137). The Swiss colony under investigation here is New Glarus in Wisconsin, which was founded in 1845. Within this particular settlement, Brian Lewis made recordings of heritage speakers born in the late 1800s and early 1900s (cf. Lewis 1968, 1969, 1973), which are now held in the Max Kade Institute for German-American Studies. Even though Lewis’ main aim in recording a Swiss heritage dialect used in different generations was to investigate to what extent the phonology had changed in comparison to the homeland, the data-set is

also of interest with regard to other heritage linguistic processes such as language maintenance and shift and possible dialect levelling in the diaspora. In order for intra- and inter-individual variation in linguistic data to be explained, complementary information regarding the homeland dialect, the settlement history, available schooling, contact scenarios in the diaspora, verticalization processes, as well as the data-collection method applied, need to be considered.

This chapter is structured as follows: Section 2 will provide socio-historical background information on the settlement history of New Glarus, Wisconsin, the history of schooling in New Glarus, as well as dialect and language contact scenarios in the diaspora. Section 3 provides information on the homeland dialect, notably the Swiss German dialect of Glarus, in order to explain to what extent the dialect distinguishes itself from other Swiss German dialects. Section 4 describes the available heritage language data that the current study is based on, as well as the collection method and the approach used to analyse the data. Section 5 systematically investigates intra-speaker and inter-speaker variation related to lexical, phonological and morphological variables of eleven heritage language speakers. Finally, in Section 5, summarising remarks and tentative conclusions will be presented.

2 New Glarus, Wisconsin – Socio-historical background

The Industrial Revolution in Europe not only brought prosperity but also led to the impoverishment of many people.¹ For instance, in Glarus Canton in Switzerland, as in many other places, home-weaving was supplanted by weaving in factories. As the factories did not offer enough work, many people did not have enough food. A Swiss report from 1842 stated that 69 pauper families, 21 beggars, and more than 100 people without land lived in the village of Matt in Glarus Canton, which had a total of 800 inhabitants. As there was no prospect of improvement of the situation, the Glarus emigration society was founded in 1844. Following their first meeting, in which the emigration to America was planned, 193 so-called Glarner started their journey to North America on 16 April 1845 (Peter-Kubli 2004; Tschudy 2007).² The poor migrants from Glarus arrived in Green County, Wisconsin in August 1845, where they founded New Glarus (Tschudy 2014: 9). Documents like diaries, letters

¹ See also Auer and Derungs (2018) for a historical sketch.

² The journey from Canton Glarus to Wisconsin, US was described in Matthias Dürst's travel diary (see Knüsli 2019 for background information and a linguistic analysis).

and other records provide some insight into the lives and challenges that the New Glarner faced in the New World (Peter-Kubli 2004; Hale 2007). Following some difficulties with growing grain and wheat in the first few years, the New Glarner turned to dairy farming on the land that they were given. Owing to hardship as a consequence of the outbreak of the Crimean war in 1854, new Swiss migrants from Glarus and other parts of Switzerland, e.g. many from the Canton of Bern, arrived in New Glarus and other parts of Green County. As the Bernese migrants tried their luck with dairy production and opened cheese factories, the combination with the Glarner's dairy farming turned out to be a good arrangement (Tschudy 2007: 8). The settlement and work contact scenarios between the Glarner and Bernese settlers are also interesting from a linguistic perspective in that the two Swiss German dialects would not have been in direct contact in the homeland (cf. Auer and Derungs 2018).

In order to reconstruct the linguistic situation in the colony of New Glarus over time, we have to rely on historical sources and personal anecdotes. Even though these accounts do not primarily have a linguistic focus, they nevertheless provide some insight into the roles of the heritage dialect/language and the dominant language in different domains. When New Glarus was founded in 1845, the language of everyday life was Glarus dialect. Historical sources confirm the monolingualism of many settlers, e.g. Tschudy (2007: 39) notes that many of the 94 New Glarus men enlisted in the Union army to serve in the Civil War (1861–1865) “did not speak English”. Fridolin Streiff was one of these men who spoke no English when he enlisted as a private, but “he came out of the war as a sergeant”, thus having learnt English during the war. According to the contemporary account by Luchsinger (1892: 338), Swiss German dialect continued to be used until the late nineteenth century and probably thereafter, as described below:

The people of the village, and also of the surrounding country, among themselves speak the German-Swiss dialect almost exclusively, just as it is spoken in Switzerland. All school and town meetings, and all legal and other business, unless transacted in writing, are of necessity conducted in this language. Many of those who were born here require an interpreter when called upon to testify as witnesses in the courts. A stranger stopping here unaware could easily imagine that he had dropped upon a district in Switzerland. The sounds and sights in the village, and the bold character of the surrounding hills, would strengthen the impression.

Hoelscher (1998, as quoted in Peter-Kubli 2004: 112–113) also commented on the linguistic situation in New Glarus and its low-paced assimilation to American society:

Interactions between the Swiss and their neighbours proceeded at a snail's pace, due, in no small part, to the village's well-deserved clannishness. From the earliest accounts of the village until its centennial celebrations after the Second World War, New Glarus maintained critical barriers to outsiders. Salesmen as late as the 1950s, for instance, stood little chance of doing any business with New Glarus merchants unless he spoke Schwyzyerdütsch, or Swiss German.

More generally, Tschudy (2014: 9) notes that “the late 1920s marked the end of the arrivals of new emigrants from Switzerland”, which in turn had an impact on the language; i.e. “it marked to some degree the end of the evolution of the Swiss language”. Apart from the latter observation, other factors such as schooling, media and church also contributed to the shift from Swiss German as the dominant language to English, as the following paragraphs illustrate.

Soon after their arrival, the inhabitants tried to operate schools, e.g. a German language school was run with few resources in winter 1846–1847 (Freitag 2012: 8). Thereafter, a school district was set up under territorial laws. Classes were then held in different homes. For instance, in 1847, the first English language school started in Balthasar Schindler’s cabin, and, in 1848, an Irishman taught in Mathias Schmid’s cabin (Schiesser and Schiesser 1994). A schoolhouse was built on colony land in 1849. The Swiss Reformed and German Methodist pastors also offered German classes. Then, in 1867, a teacher from Switzerland arrived who ensured a more permanent and formal German School in New Glarus (Freitag 2012: 8). The children were thus raised with a Swiss German dialect at home, while they were taught in English and learnt some High German at school. A change occurred when the controversial Bennet Law was passed in 1889, which imposed the use of English for the teaching of major subjects in all public and private elementary and high schools. This led to a decline of German language teaching, which the repeal of the Law in 1891 could no longer stop. The beginning of the First World War in 1914 further supplanted the teaching and use of the German language (Freitag 2012: 48, 100) with English.

A similar shift can be observed with regard to language use in newspapers. The *New Glarus Bote* (1897 and possibly earlier), which contained news items about the locals and news from the homeland, was printed in High German in New Glarus. At the same time, the German-language newspaper *Der Deutsch Schweizerische Courier*, which was concerned with the interests of the Swiss colonies in the Middle and Western states, existed. From 1912 onwards, the production of the English-language newspaper, the *New Glarus Post*, started. The shift from German to English is thus in line with the language policies in schools (Freitag 2012: 126, 173), and the previously mentioned cessation of the arrival of migrants from Switzerland. More generally, many communities with immigrant languages shifted to the majority language English in the early twentieth century in the US (see for instance Salmons 2002; Brown ed. forthcoming).

According to Hale (2007: 3), the inhabitants of New Glarus, and Green County more generally, in the nineteenth century were predominantly of Swiss origin. As Luchsinger (1892) described, Swiss German appeared to be the dominant language in the community during that time. Inter-marriage between Swiss migrants and their fellow-migrants was common-place in the first instance, which also kept the use of Swiss dialects alive (Peter-Kubli 2014: 113 and personal interviews in New Glarus

and Monroe in November 2016). Theiler (1946 as quoted in Peter-Kubli 2014: 113) states, “Very rarely in those days [i.e. the first few decades], and actually for decades to come, did the Swiss of New Glarus intermarry with people of other nationalities. Almost without exception, their choice was made among their own country folk in their own county”. Strong Swiss networks were also created through work, e.g. dairy farming and cheese making, the Swiss Reformed Church, and activities such as choirs, musical groups, Yodel clubs, the shooting club and pageant clubs. As long as the Swiss of New Glarus were largely self-sufficient, they could maintain the immigrant dialect/s/language. The maintenance of the heritage language is for instance also reflected in the minutes of the parish and the shooting club, which were recorded in German into the twentieth century (Peter-Kubli 2014: 117). Peter-Kubli (2014: 115), based on Brunnschweiler (1954), also establishes the start of World War I as a landmark in the shift from Swiss German to English. This is reflected in the sole use of English as teaching language (except for evening courses in German) and also the cessation of the use of German during church services in New Glarus. Moreover, as non-Swiss links outside of New Glarus increased over time, particularly with regard to work opportunities, an increased verticalization, i.e. changes of community structure, which strongly contributed to language shift, can be observed (cf. Brown and Salmons forthcoming). Today, the dominant language heard in New Glarus is English. There are at present very few members of the oldest generation that self-identify as Glarner dialect speakers. In the latter cases, the acquisition process of a Swiss dialect stopped when they entered school. Swiss heritage continues to be preserved in paper cutting (*Scherenschnitt*) groups, yodel and other Swiss choirs, Alphorn groups, the organisation of events such as the Wilhelm Tell play, etc. More recent immigrants from Swiss cantons other than Glarus, many of whom work in the tourist industry in New Glarus, have continued to speak Swiss dialects in the diaspora. The dominant language is, however, clearly English, with Swiss German dialect being manifest in a post-vernacular state (cf. Brown and Hietpas 2019).

3 The homeland dialect from Canton Glarus, Switzerland

This section provides a general overview of the Glarus dialect in comparison to other Swiss German dialects.³ As the Glarner migrants in Wisconsin came into

³ A similar overview of the dialect of Glarus in comparison to other Swiss German dialects can be found in Auer and Derungs (2018).

contact with Bernese dialect forms as well as forms of other Swiss and German dialect features, it is of interest to see to what extent non-Glarus dialect features have influenced the language of the New Glarus heritage speakers, and, in the context of this study, whether and how these influences are reflected in intra-individual (and inter-individual) variation. As the historical sources discussed in the previous paragraphs do not allow us to reconstruct detailed contact scenarios and social networks, we have to rely on the linguistic data sources, complemented by the existing information in historical sources, to shed light on the situation (cf. Auer et al. 2015 with regard to the *bad data problem* in historical sociolinguistics).

The vast diversity of Swiss German dialects is illustrated in the *Sprachatlas der Deutschen Schweiz* (SDS), which provides an overview of geographical differences among the Swiss German dialects alongside differences on a lexical, morphological and phonological level (Christen 2005: 22–23). The Swiss German dialects are traditionally categorised into three areas, which are Low, High and Highest Alemannic (Christen 1996; Rash 1998: 130–131); of these, Low Alemannic is found in Basel City, High Alemannic in the Cantons of Bern, Basel Country, Solothurn, Aargau, Lucerne, Zug, Zurich, St. Gallen, Appenzell, Thurgovia, Schaffhausen and Grisons, and Highest Alemannic in parts of the Canton of Fribourg, dialects in the Bernese Highlands, Unterwalden, Uri, Schwyz, Glarus, and parts of the Canton of Valais (see Figure 1 below). As this overview already indicates, the majority of the Swiss German dialects are classified as High Alemannic, but this encompasses many regional and local differences (Rash 1998: 131). The differences between the different dialect regions are clearly demarcated by three isoglosses running in a North-South and East-West direction (cf. Christen, Glaser and Friedli 2013: 32–33).

To exemplify these differences, the dialects in the cantons of Glarus (GL), Zug (ZG), Schwyz (SZ), Nidwalden (NW) and Uri (UR) differ from the dialects in Bern (BE), Lucerne (LU), Zurich (ZH) and St. Gallen (SG) with regard to hiatus diphthongization and a lack thereof, e.g. in the northern part, people use *schneie* ‘to snow’ (hiatus diphthongization) in contrast to the dialects to the south of that linguistic boundary – including the Glarus dialect – where *schniie* (lack of hiatus diphthongization) is found (Rash 1998: 133; see also Christen, Glaser and Friedli 2013: 32). Another regional difference displaying marked West-East and North-South differences is found with regard to *we have / you have / they have*. In Glarus the form *häd* is used in all three persons. In the Bernese Highland, on the other hand, different forms are used in the different persons, to wit, *hee(n) / heet / hee(n)* (see Christen, Glaser and Friedli 2013: 300).

If we focus on the dialect, regional differences, which are mostly reflected on a morphological and phonological level, can certainly also be found. In the early nineteenth century, Streiff (1915) distinguished between five main dialects that correspond to areas of (i) the *Sernftal* (i.e. Elm, Matt and Engi), (ii) the *Hin-*



Figure 1: Cantons of Switzerland (Wikicommons; Tschubby 2011).⁴

terland, (iii) the *Mittel-* and (iv) *Unterland* as well as (v) *Kerenzen*. As regards morphology, the first plural form of *haben* ‘to have’ and *wollen* ‘to want’ in the present tense is realised with the variants *mir häid* ‘we have’ and *mir wäid* ‘we want’ in the *Hinterland*, in contrast to the variants *mir händ* and *mir wänd* as used in the other areas of the canton (SDS Bd. I, 1881: 21; Lewis 1969: 12). Differences on a phonological level can, for instance, be illustrated by varying degrees of openness of /e/, notably anchored in the different historical developments of /e/-sounds (Lewis 1969: 12). While the *Hinterland* dialect has a closed /e/ before a consonant, e.g. *Federä* ‘feather’ or *Pfeffer* ‘pepper’, the *Mittelland* and *Unterland* (except for Mollis) have an open /e/, which corresponds to /æ/, as in *Fäderä* and *Pfäffer*, before consonants (Lewis 1969: 12). More generally, other phonological features that are associated with the dialect of Glarus are (a) /gg/ instead of /k/ in words like *Deggi* or *Dangge* instead of *Decki* or *Danke* (‘blanket’ and ‘thank you’, respectively), (b) the previously mentioned lack of hiatus diphthongization in words such as *schniie* ‘to snow’, *buue* ‘to build’, *nüü* ‘new’ (cf. Christen, Glaser and Friedli 2013: 32), (c) schwa as *Auslautvokal*, where schwa replaces the nasal, e.g. *Hore* for ‘horn’ (in the word final /rn/-cluster), and (d) raising of /o/ > /u/ and /ö/ > /ü/, as in *Kantu* ‘canton’, *schüü* ‘nice, beautiful’, *Zitruune* ‘lemon’, which is

⁴ The different shades in Figure 1 merely serve to accentuate the different cantons.

exclusively found in the dialect of Glarus (cf. SDS, Vol. III, 1895: 374, Auer and Derungs 2018).

This overview of selected Glarus dialect features provides the backdrop for the investigation of variation patterns, and the lack thereof, in the Lewis recordings of New Glarus heritage speakers.

4 The Lewis recordings and methodological approach

The current section first describes the heritage data under investigation and the method used for its collection. This information is relevant for the understanding and interpretation of the data, particularly with regard to patterns of variation, and the light it sheds on language maintenance and shift as well as possible dialect mixing. Second, the methodological steps taken in the current paper will be outlined.

4.1 The Glarus heritage recording by Brian Lewis

In 1966–67, Brian Lewis made recordings of descendants of Glarner migrants who were born between 1880 and 1910, i.e. second-, third- and fourth-generation speakers of Glarus dialect, in New Glarus and its surroundings. The data collected by Lewis served as the basis for his PhD thesis on *The Phonology of the Glarus Dialect in Green County* (1968).⁵ The parents of the eleven recorded heritage speakers (8 men and 3 women) originated from the *Sernftal* (Elm, Matt, Engi) and the *Mittelland* (Schwanden) in Glarus Canton. Apart from most speakers' sex, their date of birth, and the generation of immigration, no personal information is known (yet) about the heritage speakers. Given the historical information available about New Glarus in the late nineteenth and early twentieth centuries (see Section 2), the heritage speakers would probably have spoken Swiss German at home, and the older generation would have been educated in German and English, while the younger generation would have experienced the shift to English that was previously discussed with regard to teaching, church services, and media. Irrespective

⁵ The recordings are now held in the Max Kade Institute of German-American Studies in Madison, Wisconsin.

of their social networks that we can unfortunately not reconstruct, the heritage speakers will probably have had different types of bilingualism.

The data-set was based on a slightly revised version of Lester W.J. Seifert's Wisconsin German Questionnaire (cf. Seifert 1951). The questionnaire contains c. 700 English sentences which are organised according to topic, such as house and home, dishes and utensils, farm and buildings, crops and implements, animals and birds, vegetables and fruit, meals and meats, foods and drink, trees and flowers, small life, topography, store and business, the body, clothing, sickness, personal attributes, the family, social affairs, emotions, the weather, time, numerals, and miscellany. The interviewees were asked to translate these phrases and sentences into their Swiss German dialect. Here is an illustration of the material used:

House and Home

1. 1. This is the kitchen. Some houses have two kitchens. 2. The stove is in the kitchen. We have two stoves in our house. 3. Light the fire! 4. The wood is in the stove. 5. They burned all the coal. 6. The chimney is burning. 7. The oven is hot. 8. The window is broken. Their kitchen has two windows. [. . .]
2. 1. We have one real little room /try for diminutive/. Some houses even have two such little rooms. 2. The pantry is small. 3. The dishes are in the cupboard. 4. The kitchen is on the first floor. 5. He's up in the attic. 6. He goes upstairs. 7. The stairs are not very wide.

As the list of topics and the extract above illustrate, the aim of the interviewer was to elicit topic-specific vocabulary as well as morphology, e.g. singular and plural forms, and phonology, i.e. the main focus of Lewis' PhD research. As the interviewees were all fluent in English, it was possible to apply the translation method. It is noteworthy that in some of the recordings, one can hear other people being present in the room and commenting on the translations; this will likely have influenced the results somewhat. While the translation elicitation method is not aimed at triggering natural everyday speech, the elicited heritage data still allow us to investigate variation patterns with regard to topics such as language maintenance and shift, as well as influences of other (Swiss) German dialects. Moreover, as some of the interviewees had difficulties with the translation of the sentences into Swiss German dialect, notably with the retrieval of the words, light can also be shed on attrition and/or incomplete acquisition (cf. Montrul 2016). This is not only reflected in the varying lengths of the recordings but also in the different translation results; i.e. some heritage speakers rephrased the translation, probably depending on the Swiss German lexis and structures at their disposal (see also Brown and Putnam 2015 for Pennsylvania Dutch).

4.2 Methodological approach

The current study is based on the recordings of the previously mentioned revised Wisconsin German questionnaire, since they can be systematically investigated and compared. More precisely, in order to investigate patterns of variation in the recordings made by Lewis, the questionnaire was translated into High German. Thereafter, a word frequency list was created with the help of the software AntConc. The German translation of the questionnaire contains 1,507 word types and 4,631 word tokens, of which 535 types occurred multiple times. This provides us with an overview of the words that were mentioned more than once in the questionnaire translation task and can therefore shed light on patterns of variation within individuals. As indicated in Sections 2 and 3, intra-individual variation in the case of the heritage speakers under investigation may illustrate dialect contact with different Swiss German and other German dialect speakers as well as language contact with the dominant language English. For this reason, and particularly to shed light on dialect contact with other Swiss German dialects, the words from the wordlist that occur multiple times (as well as some instances of words occurring just once) were cross-checked against words contained in the *Kleiner Sprachatlas der deutschen Schweiz* (Christen et al. 2013); i.e. mostly words and forms occurring multiple times in the Lewis recordings were compared to the data provided in the language atlas. This concerns different language levels, notably lexis, phonology and morphology. The *Kleiner Sprachatlas der deutschen Schweiz* is largely based on the *Sprachatlas der deutschen Schweiz* (SDS) project, which was first launched in 1935 by the dialectologists Heinrich Baumgartner and Rudolf Hotzenköcherle (Hotzenköcherle ed. 1962–1997; see for instance also Trüb 1982). The data collection of the SDS, which was carried out c. 1940–1970, partly coincides with the data collection period of Lewis' recordings. It is therefore possible to compare Swiss German heritage data to homeland (baseline) data from roughly the same time period. As for the Lewis recordings, an auditive approach, i.e. listening to the sound recordings rather than employing language technology, was adopted for the transcription of the material. Generally, the study is of a qualitative nature owing to the low number of tokens, and no statistical tests were applied.

As regards the data investigated from the Lewis dataset, the questionnaire-based recordings of all eleven heritage speakers were investigated.⁶ The table below provides the information known about the heritage speakers, whose names are anonymised here:

⁶ My sincere thanks go to Linda Schiesser and Beth Zurbuchen for their help in finding background information on the heritage speakers recorded by Brian Lewis.

Table 1: Personal information about the New Glarus heritage speakers (Lewis collection).

NGL1	NGL2	NGL3	NGL4	NGL5	NGL6	NGL7	NGL8	NGL9	NGL10	NGL11
F	M	F	M	M	M	F	M	M	M	M
1901	1895	1912	1902	1892	1904	Unknown	1889	1885	1898	1929
3 rd gen.	3 rd gen.	2 nd gen.	2 nd gen.	3 rd gen.	3 rd gen.	Unknown	2 nd gen.	3 rd gen.	4 th gen.	4 th gen.

The ages of the heritage speakers recorded would have ranged from 37 to 81 in 1966, i.e. with NGL11 being 37, while all the other heritage speakers were 54 years or older. Some of the latter information will be relevant when discussing the findings.

5 Intra- and inter-individual variation in the New Glarus data

As previously indicated, even though the data under investigation was not collected with a view to analysing patterns of variation, it can nevertheless serve as a useful source to shed light on language maintenance and shift, as well as possible dialect mixing through different patterns of variation within the individuals.

I present the heritage speaker findings in the Lewis recordings in comparison to Christen et al.'s (2013) description of contemporary Swiss German baseline data (see Section 4.2 for details). To this end, complete tables provided in the appendix list the linguistic variable under investigation in the first column (based on Christen et al.'s division of linguistic levels), followed by a column that provides the Glarus (hometown) variants based on the *Kleiner Sprachatlas der deutschen Schweiz* (Christen et al. 2013), and then a third column that presents the respective variants by the heritage speakers including the number of tokens in brackets. In some cases, variants from other Swiss dialect regions are also given for comparative purposes in the second column. The data will here be discussed with regard to lexis, phonology and morphology respectively.

5.1 Lexis

The lexical items investigated are *ja* 'yes', *nicht* 'not' (sentence-final), *etwas* 'something', *Butter* 'butter', *Flachkuchen mit Belag* 'traybake', *Bonbon* 'sweet', *Küchenzwiebel* 'onion', *Kartoffel* 'potato', *Rande / rote Beete* 'beetroot', *Heuschrecke* 'grasshopper', *Biene* 'bee', *Hahn* 'cock', *Kater* 'tomcat', *Zuchtstier* 'bull', *Zaun*

‘fence’, *Kopfkissen klein* ‘pillow (small)’, and *Wolldecke* ‘woollen blanket’. Out of the seventeen lexical items investigated, four were relexified by all eleven heritage speakers; i.e. they consistently used an English word instead of a Swiss German variant. For instance, *Flachkuchen mit Belag* ‘traybake’ is ‘cake’ or ‘pie’, including intra-individual variation by all eleven speakers. *Bonbon* ‘sweet’ is ‘candy’ consistently, the *Zuchtstier* ‘bull’ is ‘bull’ consistently, and *Zaun* ‘fence’ is ‘fäns’ consistently. Little variation can be found with regard to *nicht* ‘not’ in sentence-final position where most heritage speakers use *nööd*; then again, all of the speakers vary in their use of *nööd*, *nüt* and/or *need* in other positions in the sentence. This is interesting as *nü(ü)/nüt* is the Glarus form while *nööd* is found in other Eastern cantons in Switzerland. Here, the heritage speakers use a dialect form different from the Glarus dialect in sentence-final position while the Glarus variant does show up, alongside other forms, elsewhere in the sentences. Lexical items where the heritage speakers (almost) consistently use the Glarus dialect forms are *Kopfkissen klein* ‘pillow (small)’, where all speakers use *Chüssi*, and *Küchenzwiebel* ‘onion’, where *Bölle* is found. As regards *Wolldecke* ‘woollen blanket’, the Glarus variant *Deggi* is used by all recorded heritage speakers except for one, who opts for the English word ‘quilt’ (NGL2). With regard to *Kartoffel* ‘potato’ and *Hahn* ‘cock’, even though inter-individual variation can be observed, all heritage speakers opt for the Glarus variants *Hör(d)öpfel* or *Härdöpfel* and *Guli* or *Güggel* respectively. Influence of other Swiss German dialects can be found with regard to lexical items like *Kater* ‘tomcat’, *Heuschrecke* ‘grasshopper’, *Rande / rote Beete* ‘beetroot’, *Butter* ‘butter’, *etwas* ‘something’ and *ja* ‘yes’. In the case of tomcat, only one speaker uses the Glarus variant *Mäuder*, two use the Lucerne variation *Mauder*, and seven use the Bernese variant *Maudi*. All heritage speakers except one use the Glarus variant *Heistöffel* for grasshopper, while NGL11 uses *Grasgümper*, i.e. the variant found in Bern and Argovia. As for beetroot, six speakers use the Glarus variant *Randech* while five speakers use the Zurich variant *Rande*; one speaker (NGL11) varies between *Randech* and the English word ‘beets’. The word ‘butter’ is *Butter* for seven heritage speakers and *Angger* for two speakers; NGL11 varies between *Butter* and *Angger* and NGL3 self-corrects from *Butter* to *Angge*. We can thus observe the increasing influence of the High German, i.e. a school language, or English word ‘butter’ here. Inter- and intra-individual variation can also be found with regard to *etwas* ‘something’, where most speakers consistently use a Glarus variant, i.e. *öppis* or *ettis*. Two speakers display intra-individual variation by using *öppis* and *eppis*, the latter being associated with Uri, Obwalden and the Bernese Highlands. Finally, the use of ‘yes’ also displays variation; most speakers use the Glarus variant *Jää* while some show variation with *Jòò*, which according to Christen et al. (2013: 44) is mainly found in the Northern dialects of Switzerland like Thurgau, St. Gallen and Lucerne, and the English form ‘yes’.

Generally, on a lexical level, it is interesting to observe how dominant the Glarus dialect still is with regard to the investigated linguistic features, i.e. except for the lexical items that have already been adopted from the dominant language English. Intra- and inter-individual variation provide some insight into influences from both English and other Swiss German dialects, thus reflecting the dialect and language situation in New Glarus in the early twentieth century.

5.2 Phonology

The phonological features regarding vowels under investigation concern *Abend* ‘evening’, *Käse* ‘cheese’, *Schnee* ‘snow’, *Baum* ‘tree’, *Apfel* ‘apple’, and *Nase* ‘nose’. All heritage speakers use the Glarus variant *Ààbet* for ‘evening’; moreover, the data of nine speakers display inter-individual variation with other lexical choices like *nachtig* or *hinocht* (‘tonight’), rather than phonological variation. As for ‘cheese’, the only translation task containing the respective word was ‘cottage cheese’. Rather than providing phonological variants like *Chääs* (Glarus variant), the speakers opted for the English word ‘cheese’ or *Ziger*, i.e. a Swiss type of cheese. Only NGL9 varied between ‘cheese’ and *Ziger*. The lexical items ‘snow’, ‘nose’ and ‘apple’ were found as *Schnee*, *Nase* and *Öpfel* (predominant form in most Swiss dialects, including Glarus and Bern) in the recordings of all eleven speakers. As regards ‘tree’, the variant *Baum*, which is commonly used in Glarus, Zurich and other Eastern cantons, is used by all heritage speakers. Two, namely NGL5 and NGL10, vary between *Baum* and *Baam*, where the latter may be explained as an independent development or an influence of other German dialects.

As regards the phonology of consonants, the linguistic features *Kind* ‘child’, *trinken* ‘drink’, *sechs* ‘six’, *Hund* ‘dog’, *morgen* ‘tomorrow’ and *Kirche* ‘church’ were investigated. The Glarus variants were selected by all heritage speakers with regard to ‘church’ (*Chilche*), ‘tomorrow’ (*moore*) and ‘dog’ (*Hund*). As for ‘child’ in the singular, all heritage speakers use *Chind*, the dominant variant in all of German-speaking Switzerland. Intra- and inter-individual variation can however be found in the plural, e.g. *Chind*, *Chinder*, *Chindara*, *Chindli*, *Kind* and *Kinder*. Finally, many heritage speakers vary in their use of ‘six’ by using *sèchs* and/or *sächs(i)*, which are variants found in Glarus and a great part of German-speaking Switzerland.

Generally, it may be observed that the items investigated display only little phonological variation, e.g. ‘tree’ and ‘children’. The variation observed with respect to ‘evening’ and ‘cheese’ is of a lexical rather than a phonological nature.

5.3 Morphology

As for morphology, interesting observations can be made regarding the variable *zwei* ('two'). Christen et al. (2013: 285) note with respect to the variable that Swiss German dialects use different forms that are linked to the grammatical gender of the noun, which goes back to the Old High German forms *zwēne*, *zwō* and *zwei* for masculine, feminine and neuter respectively. This can be illustrated with *zwe Manne*, *zwo Fraue* and *zwöi Chind* in the Bernese dialect or *zwii Manne*, *zwii Fraue* and *zwäi Chind* in the Glarus dialect. The heritage data show both intra- and inter-individual variation regarding 'two'; i.e. the usage does not display a system linked to gender distinction at all. For instance, one speaker (NGL4, m, 2nd generation) exclusively uses one variant, notably *zwei* for all genders, while NGL8 and NGL9 vary between *zwei* and *zwee* (NGL8 uses 11 *zwei* and 16 *zwee*; NGL9 uses 14 *zwei* and 18 *zwee*). Six speakers (NGL 2, 3, 5, 6, 7, 11) vary between *zwei*, *zwee* and *zwii*, notably with different distributions according to the gender of the noun. The variation pattern of NGL1 and NGL10 is *zwei*, *zwee* and *zwö*, with different gender distributions. It is noteworthy that *zwii* exclusively occurs with masculine nouns, which is in line with the original use of *zwii* in the Glarus dialect system. As for *zwö*, which has been associated with neuter in parts of the canton of Bern, is used for masculine (1 token) and feminine (1 token) nouns by NGL1 1 and for masculine (2 tokens) and neuter (2 tokens) nouns by NGL10. *Zwee* appears to be the dominant form associated with masculine and feminine nouns in the data of ten heritage speakers, while NGL4 (m, 2nd generation) uses *zwei* for all genders (12 masculine, 4 feminine, 9 neuter, 3 other), and NGL11 (m, 4th generation) prefers *zwei* for masculine and feminine nouns. The neuter form is predominantly associated with *zwei* in the data of all eleven heritage speakers. If we were to take all the evidence together, the favoured (albeit still greatly varied) system of 'two' appears to be *zwee/zwee/zwei*. Most speakers, except for NGL4, still display a (varied) distinction between different genders. Generally, the data clearly show that the original gender distinction is obsolete in the New Glarus dialect (cf. Lewis 1973: 223); i.e. we can observe confluences as well as re-distributions of forms, which Christen et al. (2013: 285) also note with regard to selected Swiss German baseline data.

As for other morphological features studied, the investigation of 'brother/brothers' in the data reveal that the eleven heritage speakers consistently use the Glarus variant *Brüeder* / *Brüederä*. With regard to 'we/they are', all heritage speakers use *sin(d)* where the pronunciation of the voiced plosive depends on the phonological environment. As for 'have' in the plural, the data do not contain any 'you have' examples. The 'we have' and 'they have' examples display some intra- and inter-individual variation, i.e. between *hāi(n)d*, *hand* and *händ*, which are all variants that are associated with the Glarus dialect. It is noteworthy that NGL3, 6,

7, 8, 9 and 10 consistently use *hääd*. As for ‘he, she, it have’, all heritage speakers consistently used *hät*, which is one of the Glarus variants. The linguistic feature ‘he goes’ has been consistently translated into *er goot*, which is the variant associated with the Eastern part of German-speaking Switzerland, e.g. Zurich, Thurgau, St. Gall, Appenzell, but not with Glarus or Bern. Finally, the only syntactic feature investigated, notably ‘have been’ in a subordinate clause, was consistently translated as *gsii is*, which is associated with the Glarus dialect.

The morphological features investigated reveal that the Glarus dialect is still rather dominant, e.g. with regard to ‘brother/brothers’, ‘we/they have’ and ‘have been’ (syntactic example). The forms that showed different developments are ‘he goes’, where a different dialectal variant was consistently used. Most interesting is the use of ‘two’ with differently gendered nouns that reveals a great amount of intra- and inter-individual variation and a change of system overall, to the extent that the original system associated with the Glarus dialect has disappeared.

5.4 Intra- and inter-individual variation as a result of dialect/ language contact

Following the discussion of the New Glarus heritage data on a lexical, phonological and morphological level, and its comparison to Glarus baseline data, it is now possible to draw some conclusions regarding variation patterns in the data. It needs to be reiterated that the current study is based on a translation task, rather than spontaneous speech, and only considered linguistic features that were comparable to baseline data, notably items contained in the *Kleiner Sprachatlas der deutschen Schweiz* (Christen et al. 2013). Nevertheless, the observations with regard to uniform responses as well as intra- and inter-individual variation allow us to shed some light on the dialect situation in New Glarus in the 1960s. The speakers investigated were some of the few speakers in the town at the time that could still speak the heritage language.

Generally, it can be observed that the language use of the heritage speakers in the translation task is surprisingly uniform with relatively few examples of intra- and inter-individual variation. The observed uniformity, in comparison to Swiss German baseline data, also allows us to shed light on what Glarus dialect features have been retained in the heritage dialect/language (cf. Seiler 2017) and where other Swiss German and/or English features have entered the language. The data clearly reflect the impact that the dominant language English has had on the heritage language. Given the heritage speakers’ ages, they would have all been educated in English, but they may have had the possibility to take German classes. In the data, transfer from the dominant language English is mostly found on the

lexical level where a number of words have been consistently relexified such as ‘cake, pie’, ‘bull’ and ‘fence’ (cf. Arnbjörnsdóttir 2015; Brown and Putnam 2015). Further examples that illustrate relexification are *Mia haind zwee graneries* (‘We have two graneries’), *s’wörste Wetter* (‘the worst weather’) by NGL1 and *Das sind die Chind woni Candy geh ha* (‘These are the children I have given candy to’) by NGL 3. Related to English, we can observe inter-individual variation with regard to ‘blanket’, where one speaker used ‘quilt’ instead of *Deggi*, but there are no examples of intra-individual variation. The phonological and morphological features investigated do not give much insight into the influence of English, but this is likely linked to the choice of features under investigation. On a morphological level, it is only NGL11 who tends to use the English *s*-plural for words that other heritage speakers inflect differently; e.g. while the plural form of ‘cock’ is *Güggel*, *Guluna* or *Guli* for most heritage speakers, NGL11 uses *Gulis*. Similarly, the plural of ‘bull’ is generally translated as *Bull* or *Bulla*, but as *Bulls* by NGL11. As regards phonology, Lewis’ (1968) systematic study sheds light on changes in the phonological system of the heritage speakers, but the phonological variables considered in the current study (based on a comparative baseline data set) do not provide any insight.

As regards the relationship between the Glarus dialect as retained in New Glarus and the possible influence of other (Swiss) German dialects in the data, it may be observed that the investigated features show a strong Glarus dialect basis concerning lexical items such as ‘yes,’ ‘something’, ‘onion’, ‘grasshopper’, ‘pillow’ and ‘woollen blanket’, where the speakers consistently opt for the Glarus variant/*s*. Some lexical items also show inter-individual variation, notably ‘butter’ where *Angge* and *Butter* is used, ‘tomcat’ where the Glarus variant *Mäuder* and the Bernese variant *Maudi* are found, as well as ‘beetroot’ where the Glarus variant *Randech* is found alongside the Zurich variant *Rande*. In these cases, inter-individual variation reflects lexical influences from other Swiss German variants. As regards the few instances of intra-individual variation with regard to phonology, no strong claims about dialect contact influence can be made. The only example that could be interpreted as dialect-related variation is *Baum* (5 tokens) versus *Baam* (1 token) in the speech of NGL10 (m, 1898, 4th generation). Similarly, on a morphological level, we only have one feature, i.e. *Er goot* for ‘He goes’, where we can consistently observe the use of a different dialect variant. The different development of the gender system of *zwei* ‘two’, i.e. conflation and redistribution, in the New Glarus data may be due to dialect contact and the gradual shift to the majority language English. Insecurity with regard to the ‘correct’ use of ‘two’ is illustrated in the data of NGL3 (F, 1912, 2nd generation) and NGL11 (M, 1929, 4th generation), who both self-correct from *zwei* to *zwee* (cf. Schmid and Köpke 2008 on the simplification/impoverishment of the L1, insecurity, hesitations, self-repair, hedging strategies).

As for the social factors, i.e. age, sex and generation of the heritage speakers, the variation patterns observed in the investigated data set do not allow us to identify clear correlations. Having said that, it is noticeable that the findings related to the youngest speaker investigated, i.e. NGL11 (M, 1929, 4th generation) who was c. 37 at the time of the recordings, while the others were 54+, differed from the others in some respects, e.g. different lexical choice to the others (*Grasgümper*), intra-individual variation between *Butter* and *Angger*, *Randech* and *beets*, English -s plural forms, and self-correction of *zwei* ‘two’. In comparison to the other 4th-generation speaker NGL10 (M, 1898), NGL11 displays more insecurity with regard to the heritage dialect, i.e. reflected in the lexical choices and variation, and somewhat more influence from the dominant language, i.e. lexicon, plural forms. The difference can probably be explained by his year of birth, which was 1929. While NGL10, born in 1898, would have grown up in a close-knit Swiss German-speaking community, NGL11 was born after the shift to English had already taken place in many domains and the community had become more vertical (see Section 2). Future studies with regard to other aspects of the heritage language will be carried out to verify this observation.

Finally, the current study was based on one type of exercise, notably the translation of English sentences into Swiss German dialect. For this reason, it was not possible to investigate speech styles related to different tasks (cf. Labov 1966). According to Lewis (1973), he also carried out some informal interviews with New Glarus heritage speakers, which elicited more spontaneous speech. To date, I have been able to identify one speaker, notably NGL3 (F, 1912, 2nd gen.) in such a recording where she was asked by Lewis to translate ‘onion’ into her Swiss German dialect. Without hesitation, the heritage speaker responded with *Zibele*, which is the Bernese variant of “onion”. She immediately realised that and corrected the response to *Bölle*, the Glarus variant. Upon enquiry by the interviewer, the heritage speaker explained that the former variant was the Bernese and the latter the Glarus variant. This example of self-correction shows that the interviewed heritage speaker was aware of the fact that the interviewer’s aim was to collect a certain kind of data, to wit, Glarus dialect features. After all, she consistently used the Glarus item *Bölle* in the translation task. This may suggest then that the heritage speakers possibly accommodated to the interviewer (cf. Giles 1973).

6 Concluding remarks

The current study investigated patterns of language variation in old recordings of eleven (second-, third- and fourth-generation) Swiss German heritage speakers

from New Glarus, Wisconsin, in order to shed light on the development of the Glarus dialect in the diaspora, and in particular processes like language/dialect maintenance and shift and possible dialect levelling. Being couched in the fields of historical sociolinguistics and heritage linguistics, a certain amount of reconstruction of the socio-historical context was necessary in order to understand the processes. To this end, the dialect/language situation in the community of New Glarus over time, including schooling, media, church, was reconstructed. The combination of the historical context with the linguistic findings and the comparison to the baseline (homeland) data (Christen et al. 2013) allows for a better understanding of the linguistic situation in New Glarus in the 1960s, as well as the inter- and intra-individual differences in dialect/language use.

The investigation of the selected lexical, phonological and morphological variables reveals that contact with English is primarily reflected at the lexical level, i.e. involving consistent relexification with regard to some items. At the same time, the lexical choices also show that the Glarus dialect is still dominant at the linguistic level. Some choices, including inter- and intra-individual variation, at the levels of lexicon and morphology, also suggest that other (Swiss) German dialects have had some influence on the heritage dialect. The most interesting finding is related to the use of the numeral ‘two’, of which comparatively many tokens are contained in the data. This morphological feature displays a lot of inter- and intra-speaker variation, showing that the original gender system can no longer be found in the heritage data. As regards social factors, no clear correlations can be found; however, the example of one heritage speaker’s (NGL11) language use and variation patterns suggests that age, probably combined with generation, can shed light on the advancement of language shift.

As the data-base used in the current study is restricted to one type of task, namely a translation elicitation task from English into Swiss German, it was not possible to investigate style differences in different contexts and related variation patterns. As these may be able to tell us more about the individual heritage speakers’ repertoires, future research will investigate (if data are available) more spontaneous speech of the New Glarus heritage speakers and compare the results to the translation task findings. In addition, more extensive investigations, e.g. systematic comparisons to the full version of the *Sprachatlas der deutschen Schweiz* should be carried out to confirm the role of age and gender regarding language use and variation patterns in the New Glarus heritage data. Ultimately, despite the fact that the Lewis recordings were not made with a view to investigating variation patterns, the combination of socio-historical context, linguistic analysis of variation patterns and comparison to homeland data allowed us to shed new light on the development of the heritage language/dialect and its use by individual speakers.

References

- Auer, Anita. 2015. Stylistic variation in Modern English letters. In Anita Auer, Daniel Schreier & Richard J. Watts (eds.), *Letter writing and language change*, 133–155. Cambridge: Cambridge University Press.
- Auer, Anita, Catharina Peersman, Simon Pickl, Gijsbert Rutten & Rik Vosters. 2015. Historical sociolinguistics: The field and its future. *Journal of Historical Sociolinguistics* 1(1). 1–12.
- Auer, Anita & Alexandra Derungs. 2018. Preserving Swiss dialect features in the diaspora: The case of New Glarus. In Karoline Kühn & Jan Heegård Petersen (eds.), *Selected proceedings of the 8th workshop on immigrant languages in the Americas, Copenhagen 2017*, 1–8. Somerville, MA, USA: Cascadilla.
- Arnbjörnsdóttir, Birna. 2015. Reexamining Icelandic as a heritage language in North America. In Janne Bondi Johannessen & Joseph C. Salmons (eds.), *Germanic heritage languages in North America: Acquisition, attrition and change*, 72–93. Amsterdam: John Benjamins.
- Bell, Alan. 1984. Language style as audience design. *Language in Society* 13(2). 145–204.
- Blom, Jan-Petter & John J. Gumperz. 2000 [1970]. Social meaning in linguistics structure: Code-switching in Norway. In Li Wei (ed.), *The bilingualism reader*, 111–136. London & New York: Routledge.
- Bousquette, Joshua & Joshua R. Brown. 2018. Heritage languages in North America: Formal linguistic approaches. *Journal of Language Contact* 11. 373–378.
- Brown, Joshua R. & Michael Putnam. 2015. Functional convergence and extension in contact: Syntactic and semantic attributions of the progressive aspect in Pennsylvania Dutch. In Janne Bondi Johannessen & Joseph C. Salmons (eds.), *Germanic heritage languages in North America: Acquisition, attrition and change*, 135–160. Amsterdam: John Benjamins.
- Brown, Joshua R. & Rachyl Hietpas. 2019. Postvernacular Dutch in Wisconsin. In Kelly Bears & Joshua R. Brown (eds.), *Selected proceedings of the 9th Workshop on immigrant languages in the Americas*, 72–82. Somerville, MA: Cascadilla Press.
- Brown, Joshua R. (ed.). Forthcoming. *Verticalization: A model for language shift*. Oxford: Oxford University Press.
- Brown, Joshua R. & Joseph C. Salmons. Forthcoming. A verticalization theory of language shift. In Joshua R. Brown (ed.), *Verticalization: A model for language shift*. Oxford: University of Oxford Press.
- Brunnschweiler, Dieter. 1954. New Glarus (Wisconsin). Gründung, Entwicklung und heutiger Zustand einer Schweizerkolonie im amerikanischen Mittelwesten. Unpublished PhD dissertation, University of Zurich.
- Christen, Helen. 1996. *Dialekt und Umgangssprache. Eine empirische Untersuchung zur Dialektalität des alltagssprachlichen Schweizerdeutschen*. Habilitation treatise. University of Freiburg, Switzerland.
- Christen, Helen. 2005. “Tour de Suisse” der Deutschschweizer Dialekte. In Paolo Barblan & Arnold Koller (eds.), *Dialekt in der (Deutsch)Schweiz – Zwischen lokaler Identität und nationaler Kohäsion*, 21–25. Lenzburg: Forum Helveticum.
- Christen Helen, Elvira Glaser & Matthias Friedli. 2013. *Kleiner Sprachatlas der deutschen Schweiz*. 5. überarbeitete und erweiterte Ausgabe. Frauenfeld, Stuttgart, Wien: Verlag Huber.
- Clark, Peter. 1972. The migrant in Kentish towns, 1580–1640. In Peter Clark & Paul Slack (eds.), *Crisis and Order in English Towns, 1500–1700*. 117–163. London & New York: Routledge.

- Cognola, Federica, Ivano Baronchelli & Evelina Molinari. 2019. Inter- vs. intra-speaker variation in mixed heritage syntax: A statistical analysis. *Frontiers in Psychology* 10. 1528.
- Eckert, Penelope. 2008. Where do ethnolects stop? *International Journal of Bilingualism* 12. 25–42.
- Eide, Kristin Melum & Hilde Sollid. 2011. Norwegian main clause declaratives: Variation within and across grammars. In Peter Siemund (ed.), *Linguistic universals and language variation*, 327–360. Berlin & New York: Walter De Gruyter.
- Eide, Kristin & Arnstein Hjelde. 2015. Verb second and finiteness morphology in Norwegian heritage language of the American Midwest. In B. Richard Page & Michael T. Putnam, *Moribund Germanic heritage languages in North America*, 64–101. Leiden & Boston: Brill.
- Freitag, Duane H. 2012. *Sauerkraut, Suspenders, and the Swiss. A Political History of Green County's Swiss Colony, 1845–1945*. Bloomington: iUniverse.
- Giles, Howard. 1973. Accent mobility: A model and some data. *Anthropological Linguistics* 15. 87–105.
- Giles, Howard & Peter Powesland. 1997 [1975]. Accommodation theory. In Nikolas Coupland & Adam Jaworski (eds.), *Sociolinguistics. A reader and a coursebook*, 232–39. Hampshire, NY: Palgrave.
- Hale, Frederick. 2007. *Swiss in Wisconsin*. Madison: Wisconsin Historical Society Press.
- Hernández-Campoy, Juan M. 2016. *Sociolinguistic styles*. Chichester: Wiley Blackwell.
- Hoelscher, Steven D. 1998. *Heritage on stage: The invention of ethnic place in America's Little Switzerland*. Madison, Wisconsin: University of Wisconsin Press.
- Hotzenköcherle, Rudolf. 1962–1997. *Sprachatlas der deutschen Schweiz (SDS)*, founded by Heinrich Baumgartner and Rudolf Hotzenköcherle in collaboration with Konrad Lobeck, Robert Schläpfer, Rudolf Trüb as well as Paul Zinsli, edited by Rudolf Hotzenköcherle, continued and completed by Robert Schläpfer, Rudolf Trüb, Paul Zinsli. Volume I: Lautgeographie I: Vokalqualität. 1962. Volume II: Lautgeographie II: Vokalquantität, Konsonantismus. 1965. Volume III: Formengeographie. 1975. Volume IV: Wortgeographie I: Der Mensch – Kleinwörter. 1969. Volume V: Wortgeographie II: Menschliche Gemeinschaft – Kleidung – Nahrung. 1983. Volume VI: Wortgeographie III: Umwelt. 1988. Volume VII: Wortgeographie IV: Haus und Hof. 1993. Volume VIII: Wortgeographie V: Haustiere – Wald- und Landwirtschaft. 1997. Bern (then Basel): A. Francke Verlag.
- Knüsli, Ladina. 2019. “Sollte dies mein Geschreibsel meine theure Heymath erreichen”: Linguistic variation in the diary of a nineteenth-century Swiss German migrant. *Journal of Historical Sociolinguistics* 5(2).
- Labov, William. 1966. *The social stratification of English in New York City*. Washington, D.C.: Center of Applied Linguistics.
- Léglise, Isabelle & Claudine Chamoreau (eds.). 2013. *The interplay of variation and change in contact settings*. Amsterdam: John Benjamins.
- Lewis, Brian. 1968. *The phonology of the Glarus dialect in Green County*. University of Wisconsin, Madison. Unpublished PhD thesis.
- Lewis, Brian. 1969. Über die Glarner Mundart in New Glarus, einer schweizerdeutschen Sprachinsel im amerikanischen Mittelwesten. Schweizerdeutsches Wörterbuch. Schweizerisches Idiotikon. Bericht über das Jahr 1969. 9–17.
- Lewis, Brian. 1973. Swiss German in Wisconsin: The impact of English. *American Speech* 48(3). 211–228.
- Luchsinger, John. 1892. *The planting of the Swiss colony of New Glarus, Wisconsin*. Madison, Wisconsin: Democrat Printing Company, State Printers.

- Meyerhoff, Miriam & Naomi Nagy (eds.). 2008. *Social lives in language. Sociolinguistics and multilingual speech communities*. Amsterdam: John Benjamins.
- Montrul, Silvina. 2016. *The acquisition of heritage languages*. Cambridge: Cambridge University Press.
- Nagy, Naomi, Michael Iannozzi & David Heap. 2018. Faetar null subjects: a variationist study of a heritage language in contact. *International Journal of the Sociology of Language* 249.
- Peter-Kubli, Susanne. 2004. Die Auswanderung aus Elm nach den USA von 1845 bis 1914. *Jahrbuch des Historischen Vereins des Kantons Glarus* 84. 11–148.
- Rash, Felicity. 1998. *The German language in Switzerland: Multilingualism, diglossia and variation*. Bern: Peter Lang.
- Salmons, Joseph. 2002. The shift from German to English, World War I and the German-language press in Wisconsin. In Walter G. Rödel & Helmut Schmahl (eds.), *Menschen zwischen zwei Welten: Auswanderung, Ansiedlung, Akkulturation*, 179–193. Trier: Wissenschaftlicher Verlag Trier.
- Sánchez-Muñoz, Ana. 2010. Different words for different contexts: Intra-speaker variation in Spanish as heritage language. In Susana Rivera-Mills & Daniel Villa (eds.), *Spanish of the US Southwest: A language in transition*, 337–352. Frankfurt & Madrid: Vervuert.
- Schiegg, Markus. 2016. Code switching in lower-class writing: Autobiographies by patients from Southern German psychiatric hospitals (1852–1931). *Journal of Historical Sociolinguistics* 2 (1). 47–81.
- Schiegg, Markus. 2018. Factors of intra-speaker variation in nineteenth-century lower-class writing. *Special issue of Neuphilologische Mitteilungen (Mobility, variability and changing literacies in modern times)* I CXIX. 101–120.
- Schiesser, Elda & Linda Schiesser. 1994. *The Swiss endure. Year by year – a chronological history 1845–1995*. Self published.
- Schmid, Monika S. & Barbara Köpke. 2008. L1 attrition and the mental lexicon. In Aneta Pavlenko (ed.), *The bilingual mental lexicon: Interdisciplinary approaches*, 209–238. Clevedon: Multilingual Matters.
- Seifert, Lester W. J. 1951. Methods and aims of a survey of the German spoken in Wisconsin. In Aaron J. Ihde (ed.), *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*. Volume XL(2). 201–210.
- Seiler, Guido. 2017. Wenn Dialekte Sprachen sind, dann ist Dialektkontakt Sprachkontakt: Zum 'Shwitzer' der Amischen in Adams County, Indiana (USA). *Zeitschrift für Dialektologie und Linguistik* 84. 202–231.
- Streiff, Catharina. 1915. *Die Laute der Glarner Mundarten*. Frauenfeld: Huber & Co.
- Theiler, Miriam B. 1946. *New Glarus' first 100 years*. Madison: Campus Publishing Company.
- Trüb, Rudolf. 1982. Der Sprachatlas der deutschen Schweiz als Beispiel einer sprachgeographischen Gesamtdarstellung. In Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert Ernst Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, 151–168. Berlin & New York: Walter de Gruyter.
- Tschubby. 2011. Kantone der Schweiz farbig, viewed 2 June 2020, <https://commons.wikimedia.org/wiki/File:Karte_Kantone_der_Schweiz_farbig_1996.png#metadata>
- Tschudy, Kim D. 2007. *The Swiss of New Glarus*. Charleston, South Carolina: Arcadia Publishing.
- Tschudy, Kim D. 2014. *New Glarus*. Charleston, South Carolina: Arcadia Publishing.

Appendix

Table: Intra-individual and inter-individual variation in the questionnaire-based recordings of the eleven heritage speakers.

Linguistic feature	Comments (Glarus baseline)	NGL1 F, 1901, 3 rd gen.	NGL2 M, 1895, 3 rd gen.	NGL3 F, 1912, 2 nd gen.	NGL4 M, 1902, 2 nd gen.	NGL5 M, 1892, 3 rd gen.	NGL6 M, 1904, 3 rd gen.
		Variants (tokens)	Variants (tokens)	Variants (tokens)	Variants (tokens)	Variants (tokens)	Variants (tokens)
Lexis							
Ja 'yes'	GL mixed forms: jää, jaa, jä	jää (3), jöò (2)	jää (5)	jää (5)	jää (5)	jöò (3), yes	jää (3), jöò (2)
nicht 'not' (sentence-final)	GL: nü(ü)/nüt / ZH, TG: nööd, nööt	nööd (7); variation between nööd, nüt and need in other positions	nööd (8); variation between nööd, nüt and need in other positions	need (3), nööd (2); variation between nööd, nüt and need in other positions	nööd (8); variation between nööd, nüt and need in other positions	nööd (9); variation between nööd, nüt and need in other positions	nööd (9); variation between nööd and nüt in other positions
Eitwas 'something'	GL mixed forms: öppis, öppes, ettis	öppis (2)	öppis (2)	öppis (2)	öppis (2)	öppis (1), eppis (1)	öppis (2), eppis (1)
Butter 'butter'	GL: Angge	Butter (2)	Butter (2)	Angge (2), Butter (1, then self-corrected to Angge)	Butter (3)	Angger (2)	Angger (2)
Flachkuchen mit Belag 'traybake'	GL: Wääje	Cake (1), Pie (2)	Cake (1), Pie (2)	Cake (1), Pie (3)	Cake (1), Pie (3)	Cake (1), Pie (2)	Cake (1), Pie (2)
Bonbon 'sweet'	GL: (Zucker-) Möckli or Chügeli	Candy (2)	Candy (1), Candana (2)	Candy (2)	Candy (2)	Candy (1), Candana (2)	Candy (2)

(continued)

Table (continued)

	GL: Böll(e)	Bölle (1)	Bölle (1)	Bölle (1)	Bölle (1)	Bölle (1)
Küchenzwiebel 'onion'		Bölle (1)	Bölle (1)	Bölle (1)	Bölle (1)	Bölle (1)
Kartoffel 'potato'	GL: Hör(d)öpfel, Härdöpfel	Härdöpfel (sg. 1) / Härdöpfel (pl. 4)	Härdöpfel (sg. 1) / Härdöpfel (pl. 4)	Härdöpfel (sg. 2) / Härdöpfel (pl. 4)	Härdöpfel (sg. 1) / Härdöpfel (pl. 4)	Härdöpfel (sg. 2) / Härdöpfel (pl. 5)
Rande / rote Beete 'beetroot'	GL: Randeck / ZH: Rande	Rande (1)	Rande (1)	Randeck (1)	Rande (1)	Rande (1)
Heuschrecke 'grasshopper'	GL: -stöffel	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)
Biene 'bee'	GL: Biili	Bii (sg. 1) / Bii (pl. 1)	Bii (sg. 1) / Bijen (pl. 1)	Bii (sg. 1) / Bii (pl. 1)	Biji (sg. 1) / Bijje (pl. 1)	Bije (sg. 1) / Bijje (pl. 1)
Hahn 'cock'	GL: Guli, Güli, Güggel	Guli (sg. 1) / Guluna (pl. 1)	Güggel (sg. 1) / Guluna (pl. 1)	Güggel (sg. 1) / Güggel (pl. 1)	Guli (sg. 1) / Guluna (pl. 1)	Guli (sg. 1) / Guluna (pl. 2)
Kater 'tomcat'	GL: Mäuder / BE: Maudi	Maudi (1)	Mauder (1)	Maudi (1)	Maudi (1)	Mäuder (1)
Zuchststier 'bull'	GL: Stier, Muni	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)
Zaun 'fence'	GL: Zuu	Fäns (sg. 2) / Fäns (pl. 1)	Fäns (sg. 2) / Fäns (pl. 1)	Fäns (sg. 2) / Fänse (pl. 1)	Fäns (sg. 3) / Fänse (pl. 1)	Fäns (sg. 4) / Fänse (pl. 1)
Kopfkissen (klein) 'pillow (small)'	GL: (Chopf-) Chüssi	Chüssi (2)	Chüssi (3)	Chüssi (3)	Chüssi (3)	Chüssi (3)
Wolldecke 'woollen blanket'	GL: Deggi	Deggi (1)	Deggi (sg. 1) / Quilt (pl. 1)	Deggi (sg. 1) / Deggana (pl. 1)	Deggi (sg. 1) / Deggen (pl. 1)	Deggi (sg. 1) / Deggana (pl. 1)

Phonology – Vowels

Abend 'evening' Aabe	GL: Ààbet / BE: Ààbet (3)	Ààbet (2), nachtig (3), hinocht '(tonight' 2)	Ààbet (4)	Ààbet (4), nachtig (4), Nacht (1)	nachtig (1), hinocht '(tonight' 2), parts with 'evening' not recorded	Ààbet (2), nachtig (3), hinocht '(tonight' 2)
-------------------------	---------------------------	--	-----------	---	---	---

Käse 'cheese' (Cottage cheese)	GL: Chääs	Cheese (2)	Ziger (1)	Cheese (1)	(Cottage) Cheese (1)	Not answered	Not recorded
Schnee 'snow'	GL: Schnee	Schnee (1)	Schnee (1)	Schnee (2)	Schnee (1)	Not recorded	Schnee (1)
Baum 'tree'	GL: Baum, Bäum	Baum (5)	Baum (5)	Baum (5)	Baum (5)	Baum (1), Baam (4)	Baum (5)
Apfel 'apple'	GL: Öpfel	Öpfel (4)	Öpfel (4)	Öpfel (3)	Öpfel (4)	Öpfel (3)	Öpfel (3)
Nase 'nose'	GL: Nase	Nase (3)	Nase (3)	Nase (3)	Nase (3)	Nase (3)	Nase (3)

Phonology – Consonants

Kind 'child'	GL: Chind	Chind (sg. 1) / Chind (pl. 6), Chinder (pl. 3), Chindara (pl. 1)	Chind (sg. 1) / Chind (pl. 6), Chinder (pl. 2)	Chind (sg. 2) / Chind (pl. 6), Chinder (pl. 4)	Chind (sg. 1) / Chind (pl. 2), Chinder (pl. 6), Kinder (pl. 2)	Chind (sg. 1) / Chind (pl. 5), Chinder (pl. 1)	Chind (sg. 1) / Chind (pl. 7), Chinder (pl. 2)
trinken 'drink', different forms	GL: tringge / BE: trinkche, treiche, trihe	tringge (2)	tringge (2), trinkcht (1)	tringge (2)	tringge (2)	tringge (2)	tringge (1), sufe (1)

Sechs 'six'	GL: sëchs / sächs	sëchs (2)	sëchs (1) / sächs (1)	sëchs (2)	sëchs (2)	sëchs (1)	sëchs (2)
Hund 'dog'	GL: Hund / BE: Hung, Hun(n)	Hund (sg. 4) / Hünd (pl. 1)	Hund (sg. 4) / Hünd (pl. 1)	Hund (sg. 3) / Hund (pl. 1), Hünd pl.	Hund (sg. 6) / Hünd (pl. 1)	Hund (sg. 5) / Hünd (pl. 1)	Hund (sg. 4) / Hünd (pl. 1)

(continued)

Table (continued)

	GL: moore, mòòre / TG (south): moura / BE: mòòrn	moore (1)	moore (1)	moore (1)	moore (1)	moore (1)
morgen 'tomorrow'						
Kirche 'church'	GL: Chil(e)che / BE: Chiuche	Chilche (4)	Chilche (4)	Chilche (4)	Chilche (4)	Chilche (4)
Morphology						
zwei 'two'	GL: zwii/zwi/ zwäi BE: zwe/zwo/ zwöi ZH, TG, SG, AP: zwee/zwoo/ zwai-zwää	zwäi (11): 2 m, 1 f, 6 n, 2 other zwee (14): 11 m, 2 f, 1 n zwö (2): 1 m, 1 f	zwai (12): 2 m, 0 f, 8 n, 3 other zwee (13): 8 m, 3 f, 1 n zwii (3): 3 m	zwai (13): 1 m, 1 f (then self-corrected to zwee), 6 n, 3 other zwee (12): 8 m, 3 f, 1 n zwii (2): 2 m	zwai (28): 12 m, 4 f, 9 n, 3 other zwee (14): 10 m, 3 f, 1 n zwii (2): 2 m	zwai (12): 1 m, 0 f, 8 n, 3 other zwee (15): 11 m, 3 f, 1 n zwii (1): 1 m
Bruder / Brüder 'brother / brothers'	GL: Brüeder / Brüederä / BE: Brueder / Brüeder	Brüeder (sg. 2) / Brüederä (pl. 1)	Brüeder (sg. 2) / Brüederä (pl. 1)	Brüeder (sg. 2) / Brüederä (pl. 1)	Brüeder (sg. 2) / Brüederä (pl. 1)	Brüeder (sg. 2) / Brüederä (pl. 1)
er geht 'he goes'	GL: gaat / BE: geit, geet / ZH, TG, SG, AP: goot, gööt	Er goot (2)	Er goot (2)	Er goot (2)	Er goot (2)	Er goot (2)
wir / sie sind 'wir / they are'	GL: sind / BE: wir si(n) / sie si(n)	sie 'they': sin(d) (60)	sie 'they': sin(d) (60)	sie 'they': sin(d) (60)	sie 'they': sin(d) (57)	sie 'they': sin(d) (58)

haben Plural 'have plural'	GL: häid, hand / BE: hei(n)/heit/ hei(n), hee(n)/ heet/hee(n), hii(n)/hiit/hii(n)	wir 'we': häi(n) d (21) ihr 'you': - sie 'they': häid (4)	wir 'we': häi(n) d (19) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (20) ihr 'you': - sie 'they': häind (6)	wir 'we': häid (23) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (19) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (20) ihr 'you': - sie 'they': häind (6)	wir 'we': häid (18) ihr 'you': - sie 'they': häid (5)
(er, sie, es) hat / hätte '(he, she, it) have / would have'	GL: het / hät(ü), hät / het(ü) / BE: hèt / hät	wir 'we': häi(n) d (21) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (19) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (20) ihr 'you': - sie 'they': häind (6)	wir 'we': häid (23) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (19) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (20) ihr 'you': - sie 'they': häind (6)	wir 'we': häid (18) ihr 'you': - sie 'they': häid (5)
gewesen bin (Nebensatz) 'have been (subordinate clause)'	GL: gsii is / BE: is gsii	wir 'we': häi(n) d (21) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (19) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (20) ihr 'you': - sie 'they': häind (6)	wir 'we': häid (23) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (19) ihr 'you': - sie 'they': häid (5)	wir 'we': häi(n) d (20) ihr 'you': - sie 'they': häind (6)	wir 'we': häid (18) ihr 'you': - sie 'they': häid (5)

(continued)

Table (continued)

Linguistic feature	Comments (Glarus baseline)	NGL7 F, no info known	NGL8 M, 1889, 2 nd gen.	NGL9 M, 1885, 3 rd gen.	NGL10 M, 1898, 4 th gen.	NGL11 M, 1929, 4 th gen.
Lexis		Variants (tokens)	Variants (tokens)	Variants (tokens)	Variants (tokens)	Variants (tokens)
Ja 'yes'	GL mixed forms: jäa, jaa, jä	jää (1), jöö (3)	jää (2), jöö (1), Yes (1)	jöö (2)	jää (3), jöö (1)	jää (4), jöö (1)
nicht 'not' (sentence-final)	GL: nü(ü)/nüt / ZH, TG, SG: nööd, nööt	nööd (6); variation between nööd and nüt in other positions	nööd (6); variation between nööd, nüt and need in other positions	nööd (13); variation between nööd and nüt in other positions	nööd (7); variation between nööd and nüt in other positions	nööd (13); variation between nööd and nüt in other positions
etwas 'something'	GL mixed forms: öppis, öppes, ettis,	öppis (2)	ettis (2)	ettis (1)	öppis (2)	öppis (2)
Butter 'butter'	GL: Angge	Butter (2)	Butter (2)	Butter (2)	Butter (2)	Butter (3), Angger (1)
Flachkuchen mit Belag 'traybake'	GL: Wääje	Cake (1), Pie (2)	Cake (1), Pie (2)	Cake (1), Pie (2)	Cake (1), Pie (2)	Cake (1), Pie (2)
Bonbon 'sweet'	GL: (Zucker-) Möckli or Chügeli	Candy (2)	Candy (1)	Candy (2), Candana (2)	Candy (2)	Candy (2)
Küchenzwiebel 'onion'	GL: Böll(ü)	Bölle (1)	Bölle (1)	Bölle (1)	Bölle (1)	Bölle (1)
Kartoffel 'potato'	GL: Hör(c)öpfel, Härdöpfel	Härdöpfel (pl. 1) Härdöpfel (pl. 4)	Hördöpfel (sg. 1) / Hördöpfel (pl. 4)	Härdöpfel (sg. 2) / Härdöpfel (pl. 5)	Härdöpfel (sg. 1) 1) / Härdöpfel (pl. 4)	Hördöpfel (sg. 1) / Hördöpfel (pl. 6)

Rande / rote Beete 'beetroot'	GL: Rande / ZH: Rande	Rande (1)	Rande (1)	Rande (2)	Rande (1)	Rande (1) / Beets (1)
Heuschrecke 'grasshopper'	GL: -Stöffel	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Heistöffel (sg. 1) / Heistöffel (pl. 1)	Grasgümper (sg. 1) / Grasgümper (pl. 1)
Biene 'bee'	GL: Bili	Bii (sg. 1) / Bij (pl. 1)	Bii (sg. 1) / Bijen (pl. 1)	Bii (sg. 1) / Bijen (pl. 1)	Bije (sg. 1) / Bije (pl. 1)	Bije (sg. 1) / Bies 'bees' (pl. 1)
Hahn 'cock'	GL: Guli, Güli, Güggel	Güggel (sg. 1) / Güggel (pl. 1)	Guli (sg. 1) / Gulluna (pl. 1)	Guli (sg. 1) / Gulluna (pl. 1)	Guli (sg. 1) / Guli (pl. 1)	Guli (sg. 1) / Gulis (pl. 1)
Kater 'tomcat'	GL: Mäuder / BE: Maudi	not given	Mauder (2)	Maudi (2)	Maudi (2)	Maudi (1)
Zuchtstier 'bull'	GL: Stier, Muni	Bull (sg. 1) / Bull (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulla (pl. 1)	Bull (sg. 1) / Bulls (pl. 1)
Zaun 'fence'	GL: Zuu	Fäns (sg. 2) / Fäns (pl. 1)	Fäns (sg. 4) / Fänse (pl. 1)	Fäns (sg. 3) / Fänse (pl. 1), Fänses (pl. 1)	Fäns (sg. 4) / Fänse (pl. 1)	Fäns (sg. 2) / Fänse (pl. 1)
Kopfkissen (klein) 'pillow (small)'	GL: (Chopf-) Chüssi	Chüssi (3)	Chüssi (3)	Chüssi (3)	Not recorded	Not recorded
Woldecke 'woollen blanket'	GL: Deggi	Deggi (sg. 1) / Deggena (pl. 1)	Deggi (sg. 1) / Deggena (pl. 1)	Deggi (sg. 1) / Deggena (pl. 1)	Not recorded	Not recorded

(continued)

Table (continued)

Phonology – Vowels	
Abend 'evening' Aabe	GL: Ààbet / BE: Ààbet (3), nachtig (3), hinocht ('tonight' 2) Ààbet (4), nachtig (2), hinocht ('tonight' 2) Ààbet (3), nachtig (2), hinocht ('tonight' 2) Ààbet (3), nachtig (3), hinocht ('tonight' 1) Nocht (1) Ààbet (4), nachtig (3), hinocht ('tonight' 1)
Käse 'cheese'	GL: Chääs Not answered Ziger (1) (Cottage) Cheese (1), (Cream) Cheese (1) Ziger (1) (Cottage) Cheese (1)
Schnee 'snow'	GL: Schnee Schnee (1) Schnee (1) Schnee (1)
Baum 'tree'	GL: Baum, Bäum Baum (4) Baum (4) Baum (7) Baum (5), Baam Baum (5)
Apfel 'apple'	GL: Öpfel Öpfel (3) Öpfel (2) Öpfel (5) Öpfel (3)
Nase 'nose'	GL: Nase Nase (3) Nase (3) Nase (3) Nase (3)
Phonology – Consonants	
Kind 'child'	GL: Chind Chind (sg. 1) / Chind (pl. 4), Chinder (pl. 2), Kind (pl. 3) Chind (sg. 1) / - / Chind (pl. 3), Chinder (pl. 4), Kind (pl. 2) Chind (sg. 1) / Chind (pl. 10), Kind (pl. 2) Chinder (pl. 1) Chindli (pl. 3)
trinken 'drink', different forms	GL: tringge / BE: trinke, treiche, triihe Not recorded tringge (2) tringge (1), sufe (1) tringge (2)
Sechs 'six'	GL: sächs / sächs sächs (1), sächs (1) sächs (1), sächs (1) sächs (1), sächs (1)

Hund 'dog'	GL: Hund / BE: Hung, Hun(n)	Hund (sg. 4) / Hünd (pl. 2)	Hund (sg. 4) / Hünd (pl. 1)	Hund (sg. 4) / Hünd (pl. 1)	Hund (sg. 6) / Hünd (pl. 1)
morgen	GL: moore,	moore (1)	moore (1)	moore (1)	moore (1)
'tomorrow'	mòdore / TG (south): moura / BE: mòorn				
Kirche 'church'	GL: Chil(e)che / BE: Chiuche	Chilche (4)	Chilche (4)	Chilche (8)	Chilche (4)
Morphology					
zwei 'two'	GL: zwii/zwii/ zwäi	zwai (13): 2 m, 0 f, 8 n, 3 other	zwai (14): 1 m, 0 f, 10 n, 3 other	zwai (9): 2 m, 0 f, 4 n, 3 other	zwai (27): 10 m (1 self-corrected to zwee), 3 f, 9 n, 4 other
	BE: zwe/zwo/ zwöi	zwee (13): 9 m, 3 f, 1 n	zwee (16): 11 m, 3 f, 2 n, 1 other	zwee (16): 12 m, 4 f, 1 n, 3 f, 1 n	zwee (3): 3 m, 2 n
	ZH, TG, SG, AP: zwoe/zwoo/ zwai-zwäi	zwii (1): 1 m			
Bruder / Brütder	GL: Brütder / Brüederä / BE: Brueder / Brüeder	Brütder (sg. 2) / Brüederä (pl. 1)	Brütder (sg. 2) / Brüederä (pl. 1)	Brütder (sg. 2) / Brüederä (pl. 2)	Brütder (sg. 2) / Brüederä (pl. 1)
er geht 'he goes'	GL: gaat / BE: gelt, geet / ZH, TG, SG, AP: goot, gööt	Er goot (2)	Er goot (1), Er lauft (1)	Er goot (2)	Er goot (3)
wir / sie sind 'wir / they are'	GL: sind / BE: wir / sie	sind (d) (59)	sie 'they': sind (d) (66)	sie 'they': sind (d) (58)	sie 'they': sind (d) (67)

(continued)

Table (continued)

haben Plural 'have plural'	GL: häid, hand / BE: hei(n)/heit/ hei(n), hee(n)/ heet/hee(n), hi(n)/hii(n)/hi(n)	wir 'we': häid (21) ihr 'you': - sie 'they': häid (5)	wir 'we': häid (20) ihr 'you': - sie 'they': häid (5)	wir 'we': häid (22) ihr 'you': - sie 'they': häid (5)	wir 'we': häid (21) ihr 'you': - sie 'they': häid (5)	wir 'we': hand, händ, häi(n)d (23) ihr 'you': - sie 'they': hand, händ, häi(n)d (7)
(er, sie, es) hat / hätte '(he, she, it) have / would have'	GL: het / häit(i), hät / het(i) / BE: hêt / hât	hät (54) / -	hät (52) / -	hät (50) / -	hät (53) / -	hät (57) / -
gewesen bin (Nebensatz) 'have been (subordinate clause)'	GL: gsii is / BE: is gsii	gsii is (2)	gsii is (2)	gsii is (2)	gsii is (3)	gsii is (4)

Anna D. Havinga

Intra-individual Variation in Nineteenth-century Private Letters

Abstract: This chapter explores intra-individual variation (IAV) in three nineteenth-century private letters. Quantitative and qualitative analyses of these letters, written in 1845 by a maid working in Graz (Austria) to her sister in Straden (Austria), illustrate to what extent the language use of the same person can vary in writing. In these letters, variation can be found on all core linguistic levels (on the orthographic-phonetic level as well as on the level of morphology and syntax), with the use of punctuation and lexis also varying. Differences between the three letters as well as variation within them are discussed in detail, showing that they are generally not random. Both language-internal and language-external factors are considered to explain instances of IAV in these letters and to widen our understanding of linguistic variation in nineteenth-century Austria.

Keywords: Upper German, nineteenth century, private letters, linguistic repertoire

1 Introduction

Intra-individual variation (IAV), defined broadly as variation in the language use of individuals, has been researched as a component of variationist sociolinguistics for about 50 years, leading to different theories on this phenomenon. In comparison to research on inter-individual variation, i.e. the variation in language use between different groups of people, IAV has been given less attention by historical sociolinguists. One reason for this gap in research may be the lack of a comprehensive framework specific to IAV, both for the contemporary and historical context, which Ulbrich and Werth address in this volume. Their framework presents three domains for IAV: 1) non-conditioned IAV, i.e. variation that can neither be attributed to language-external nor to language-internal factors, 2) conditioned IAV, i.e. systematic and predictable variation that occurs due to

Acknowledgements: I thank Walter Schober and Christine Schober, who kept these letters and allowed me to analyse them, as well as Kay Sloan for her encouraging interest in and her work on these letters as a final-year student at the University of Aberdeen. I also thank the book editors and reviewers for their feedback and suggestions for improvement.

<https://doi.org/10.1515/9783110743036-010>

language-internal factors, and 3) functionalised IAV, i.e. the use of different linguistically and extralinguistically meaningful or indexicalised variants. In addition, Ulbrich and Werth's framework includes a domain for mandatory forms, i.e. "forms that do not allow for any kind of IAV" as there are no alternatives.

The study presented here focuses on functionalised IAV as a result of extralinguistic factors but also mentions non-conditioned and conditioned IAV. Given this focus, the three main approaches to extralinguistically motivated IAV or 'style shifting' – Labov's (1972) attention to speech, Bell's (1984) audience design, and the speaker design approach (Coupland 1996) – are outlined in the following section, showing how they were applied to historical contexts.¹

1.1 Approaches to functionalised IAV applied to historical contexts

Labov's research in the 1960s dispelled the belief common among linguists at the time that variation within an individual's language use is random (Labov 1972: 70–71). By analysing the language use of individuals in different contextual styles, Labov showed that there were patterns and regularity to IAV. More specifically, Labov (1972) found quantitative differences in the use of certain variables, such as post-vocalic (r), in informal, casual (e.g. talking to a friend or relative) versus formal, careful contextual styles (e.g. reading word lists), with prestigious variants being used more frequently in the latter context, when more attention was paid to speech. Since historical sociolinguists cannot elicit data for investigation and rely on the (written) sources available, they need to look for cues that indicate how much attention was paid to the writing process, such as the handwriting itself.

In his analysis of eleven letters written between 1891 and 1905 by a mentally ill day-labourer at a German psychiatric hospital, Schiegg (2018: 112–114) shows how the writer's illness and/or old age influenced not just the language used but also his handwriting. Within single texts of this writer, Schiegg (2018: 107) observed "possible variation in attention during the writing process", noting that the attention to writing is usually the highest at the beginning of the letter and that the writer's attention can increase at the beginning of a new page or at the more formulaic end of a letter (Schiegg 2018: 106–107). This indicates that even quite short letters can show differences in the attention paid to writing, which may result in IAV.

¹ These three approaches will only be outlined briefly here. For a more detailed summary, see Schilling (2013).

In contrast to Labov, Bell (1984) argues that a speaker's variation in language use is due to an adjustment to different audiences: "Style is what an individual speaker does with a language in relation to other people" (Bell 2002: 141). Rather than observing how the deliberate manipulation of attention paid to language leads to changes in language use, Bell builds on the "accommodation theory" of Giles and his associates (Giles and Powesland 1975; Giles and Smith 1979), focusing on the persons and roles in a speech situation and how they affect style. In his model of intraspeaker variation, Bell (1984) acknowledges that style can be either responsive – i.e. influenced by the audience (addressees, auditors, overhearers or eavesdroppers) and non-personal factors (such as the setting or topic) – or initiative, where style "itself initiates a change in the situation" (Bell 1984: 182). The latter is what Bell refers to as "referee design": in addition to speakers changing their style in response to who is listening ("audience design"), a speaker's style is also influenced by "referees", i.e. "reference groups, who are absent but influential on the speaker's attitudes" (Bell 1984: 161). Bell links variation according to topic or setting to "audience design" since "speakers associate classes of topics or settings with classes of persons" (Bell 1984: 181) and "[s]tyle derives its meaning from the association of linguistic features with particular social groups" (Bell 2002: 142). Linked to this is what Bell (1984: 151) calls the "Style Axiom"; i.e. "[v]ariation on the style dimension within the speech of a single speaker derives from and echoes the variation which exists between speakers on the 'social' dimension". This means that "there must be variation between speakers in a community for a variable to be subject to style shift in the speech of one speaker" (Bell 1984: 157) and that the degree of style variation is usually not greater than the degree of social variation (Bell 1984: 152). It can, therefore, be argued that IAV only depicts a part of the linguistic variation that exists in a certain speech community.

Hernández-Campoy and García-Vidal (2018) illustrate how Bell's theory can be applied to historical documents. Comparing the use of the new orthographic variant <th> instead of the old runic in letters written by John Paston I (1421–1466) and his son, John Paston III (1444–1504), to different addressees, they find that both writers attuned their writing practices to their addressees, depending on the power relations between the writer and the addressee. In addition to evidence of audience design, Hernández-Campoy and García-Vidal (2018: 403–404, 408) also find evidence that referee design affected the use of the two orthographic variants. John I used the <th> variant more frequently in letters to his wife than to other addressees of equal social rank, even though she used this variant less often. Instead of converging towards the language use of his wife, John I's use of <th> seems to have been influenced by referees. Similarly, John III used the <th> form consistently in letters to the minor gentry but not to relatives (with both groups belonging to the same social rank as the writer). Hernández-Campoy and

García-Vidal (2018: 408) argue that John III marked “social distance and social positioning” with members of the minor gentry by using the <th> variant in 100% of the cases, a point that links to the speaker design approach supported by Coupland (1996), amongst others.

Coupland (2002: 186), too, criticises Labov, arguing that Labov’s approach to IAV creates an “illusion of non-motivated style-shifting” (Coupland 2002: 191). Instead, “style needs to be located within a model of human communicative purposes, practices and achievements, and as one aspect of the manipulation of semiotic resources in social contexts” (Coupland 2002: 186). Rather than limiting style to dialect versus standard language use, the study of style also needs to consider variation on other communicative levels, such as politeness and lexical formality (Coupland 2002: 189). Referring to Hymes (1974), who believes that styles reflect personal choices, and Bell’s (1984) notion of “initiative” style-shifting, Coupland sees style as a speaker’s creative and strategic tool to project “various versions of his or her social and personal identity” (Coupland 2002: 200). Analysing a transcript of a local Cardiff radio disc jockey from 1985, Coupland (2002: 204–209) illustrates how an individual can manipulate language use for specific interactional purposes. He concludes that a correlational account is not suitable for capturing the inter-play between style and context since it is the speaker who “is the orchestrator of contexts” (Coupland 2002: 208). Rather than seeing a speaker’s stylistic choices as situational reflexes, Coupland (2002: 209) considers them to be performances, which are used deliberately for interactional purposes.

In her analysis of English letters from the first half of the nineteenth century, Auer (2015) illustrates how the speaker design approach can be applied in historical sociolinguistics. She observes that writers from different social classes depict different social identities in letters to different addressees. An analysis of six letters from three writers of different social classes (the social elite, the middle class, and the labouring poor) leads Auer (2015: 155) to conclude that stylistic variation between letters to different addressees will be greater by writers with better schooling and more writing practice, who can draw on a greater repertoire, which allows them to be more creative with language. Nevertheless, members of all the social groups analysed by Auer were able to create different social identities in their letters, even if members of lower social classes were not able to attune their language use as much as those of higher social classes.²

² Finegan and Biber (2002: 264–265), however, point out that it is not always higher social classes that have a wider repertoire of registers. Referring to Irvine’s (1990) research, they describe the situation among the Wolof of Senegal, where the lower-ranked speakers “have access to the wider repertoire of registers and, in particular to those registers that require greater explicitness

1.2 Objectives and research questions

As in Auer (2015), private letters are investigated in this chapter, since letters can provide access to different styles of the same writer, making it more likely to encounter evidence of IAV. Furthermore, variation can be found within individual letters. Schiegg (2018: 105–106) points out that “[c]lusters of language variants associated with orality generally appear in the middle of letters, which tend to contain the writers’ more individual content” and less formulaic language than the beginning and the end of a letter. Similarly, Elspaß (2005: 170) explains that fewer interferences from regional varieties occur in formulaic parts of letters, since these formulae are remembered with any distinct grammatical or orthographic features. Private letters, especially those by ‘lesser educated’ writers, can be considered the “most ‘oral’ written sources in language history” (Elspaß 2012: 158).³ Since they are as close to spoken language as historical sociolinguists can get and since they are not edited, in contrast to any published sources, the probability of finding instances of IAV is higher in private letters.

The aim of the analyses presented here is to identify and explain instances of IAV, using both quantitative and qualitative methods to address the following research questions:

- 1) To what extent are instances of IAV in these letters systematic and/or intentional?
- 2) Which factors may trigger IAV in the letters investigated?

While the data examined is historical, the analyses also offer insights into contemporary IAV. Following the ‘principle of uniformitarianism’, it can be assumed that current processes are not any different in kind from processes happening in the past (Joseph 2012: 70). This means that we can use historical data in order to understand contemporary linguistic processes or phenomena.

The following section deals with the data and methods used to investigate IAV in the nineteenth century, providing information about the letters’ author

and rely less on shared context,” since it is the lower-ranked members of the community who are tasked with “articulating what the nobles wish to communicate publicly” (Finegan and Biber 2002: 264–265).

³ See Koch and Oesterreicher’s (1985, 1994) model, which places different text types on a continuum between ‘language of proximity’ (characterised by dialogue, spontaneity, privacy, familiarity between communication partners etc.) and ‘language of distance’ (which is planned, public, a monologue, and the communication partners do not know each other), while also distinguishing between written (graphic) and spoken (phonic) texts.

and content. Section 3 then presents the analyses' findings, offering explanations in section 4, and reaching conclusions in section 5.

2 Data and methods

Auer (2015), Hernández-Campoy and García-Vidal (2018), and Schiegg (2018) analysed letters by the same writer to different addressees (see above), illustrating how writers adjust their writing styles to different audiences and how they, to varying extents, create different identities by doing so, providing evidence for both audience and speaker design. Schiegg (2018), additionally, notes attention to writing as well as increasing age and/or illness as factors for IAV in the letters he analysed. These case studies, thus, illustrate that modern sociolinguistic theories can be applied to historical contexts.

The data used here, in contrast, is written by the same writer to the same addressee, probably over about six months (see below). This means that any change in the writer's language use is not due to a change in its addressees, which distinguishes the study presented here from that of Auer (2015) and Hernández-Campoy and García-Vidal (2018). Also, it is unlikely that any linguistic differences observed in the letters reflect more general changes in language use due to increasing age (as shown by Schiegg 2018) since they were written within such a short period of time.

The data consist of three private letters by Josepha P., who worked in Graz (Austria), to her sister Maria in Straden (approximately 50 km south-east of Graz). The first letter is dated 9 March, with 1845 added later, the second 23 March 1845, and the third letter 24 August without a year.⁴ Given that Josepha refers to her first letter in her second one and that she mentions in her third letter that the day after tomorrow (*ibermorgen*) is a Tuesday, with 24 August 1845 indeed being a Sunday, it can be assumed that they were all written in 1845. The letters are similar in length, with the first letter comprising 457 tokens, the second letter 476 tokens, and the third letter 398 tokens. While the amount of data is rather limited, the letters offer valuable insights into IAV, as the following sections illustrate.

No archival material on Josepha P. could be found in public archives in Styria, but the letters provide clues on her education and social status. In all three letters, Josepha asks her sister in Straden to greet relatives and friends, which suggests that she was originally from Straden or the surrounding area and then moved to

⁴ The short time period between Josepha's first and second letter suggests a rather frequent exchange between the sisters. Unfortunately, only three of their letters have been preserved.

Graz.⁵ The letters are in neat handwriting (particularly the first two), indicating that Josepha was not an unpractised writer. We can assume that she attended compulsory elementary schooling (set at six years), which was introduced in Austria in 1774.⁶ There was a school in Straden from 1628 onwards, which, due to its reputation as one of the best schools in the area, was declared a so-called *Musterschule* [model school] on 29 April 1812 (Müller 1988: 237–238).⁷ We cannot be certain whether Josepha attended this particular school, but regardless of the specific school and the time she spent there, she would have been taught with standardised German textbooks introduced by Johann Ignaz Felbiger as part of Maria Theresa's school reform in 1774 (Havinga 2018: 77), which remained in use until 1848 (von Polenz 2013: 186). These textbooks were based on East Central German norms advocated by eighteenth-century grammarians (particularly Johann Christoph Gottsched and Johann Christoph Adelung) (Havinga 2018: 73–74, 91). One of the textbooks used in the school in Straden was the *Anweisung die deutsche Sprache richtig zu sprechen, zu lesen und zu schreiben* [*Instruction on speaking, reading and writing the German language correctly*] (Müller 1988: 238), which was first published in 1794 and closely followed Adelung's norm prescriptions (Havinga 2018: 91). As Havinga (2018) shows, textbooks contributed to the invisibilisation of Upper German variants in eighteenth- and nineteenth-century Austria. In other words, Josepha would have learnt to use East Central German norms rather than Austrian variants in school.

The East Central German norms were also disseminated through newspapers (cf. Havinga 2019). From Josepha's second letter we know that she read the newspaper, which she refers to when writing about the unusually long winter:

wir glauben das wird halt dieser lange
 ungewentlicher Wintter machen, der **wie unsere Zeitung Schreibt**
 nur vor, 60. Jahren wahr (letter 2, lines 8–10, [my emphasis])

[we believe that this will be due to the long, unusual winter, which **as our newspaper writes**, last occurred 60 years ago]⁸

5 It seems that Josepha's mother moved to Graz with Josepha, as she sends regards to Maria in all three letters.

6 Cf. Havinga (2018) for more information on Austria's school reform and its effect on writing practices in eighteenth- and early nineteenth-century Austria.

7 These *Musterschulen*, also known as *Normalschulen*, would serve as models for a homogeneous state education and train future teachers (Jaklin 2003: 75).

8 All passages quoted from Josepha's letters are translated by the author of this chapter, A.D.H.

It was certainly not uncommon for people of lower social classes to read newspapers in the nineteenth century. Elspaß (2005: 94–95) provides a number of references to newspaper reading from his corpus of nineteenth-century letters by ‘lesser-educated’ German emigrants, indicating that newspapers were read on a regular basis by these emigrants.

In addition to these inferences about Josepha’s education, we learn from her first letter that she works as a maid and, therefore, belongs to the lower social class (cf. Elspaß 2005: 74):

ich habe so schwer Zeit das ich bey nan
 Jede Vierdel Stund ausmessen muß, zwar bin ich nicht gezwungen
 dazu, aber mein Fleiß läst mir keine Ruh, meine Gnädige
 Frau hat nicht arbeit geⁿug für mich, sondern ich muß sogar
 für fremde hemden und kleider machen, ich habe jetz
 aus diesen Dienst dreten wohlen weil mir der Lohn zu
 klein ist, aber die Gnädige Frau last mir durchaus nicht
 sie hat mir gleich mehreres versprochen und hat mir einen
 ganzen Thahler zum Mark geben (letter 1, lines 9–15)

[I have so little time that I almost have to keep track of every quarter of an hour. I am not forced to do so but my diligence does not leave me in peace. My mistress does not have enough work for me; I even have to wash shirts and dresses for strangers. I wanted to resign from this post because I do not earn enough, but my mistress does not let me do so. She made various promises and gave me a whole thaler to go to the market]

This extract depicts Josepha as a busy, hard-working, and ambitious maid. While she does not complain about the work itself, Josepha feels that she does not earn enough and, therefore, wants to quit, but her mistress manages to convince her to stay (at least for a few months). In Josepha’s third letter, we learn that she is going to take on another position, working as a lady’s maid for a countess, and, thus, adopts a somewhat higher social status.⁹

ich kome nach Marburg zu der Exlantz Gräfin
 Pranteis welche in der Burg wohnen die selbst ihr
 Eigenthum ist. man Mahlte mir diesen Dienst
 zu einen so Gläzeden Gänzenten Himel auf, das ich

⁹ Berger and Holler (1997: 69) point out that maids working for the nobility had an easier and more pleasant life than maids working for tradesmen and public officials. Kocka (1990: 124), too, notes that it made a significant difference whether maids were responsible for everything in a small household or whether, as was the case in households of the nobility, they worked as part of a hierarchically structured team. As Josepha writes in the following extract, she was higher in this hierarchical structure than the chambermaids, one of which was meant to serve her.

mir ein Größeres Glück wünschen würde ich kome als
 Erste Person als Kamerjungfrau im Hause und
 habe zwey Stubenmadhehen hinter mir wovon eine mich
 sogar bedienen Sohlte was mir sehr lächerlich vorkam (letter 3, lines 8–15)

[I get to go to Maribor to Countess Brandeis, who lives in a castle that she owns. This position was touted so much that I anticipated better luck. I am going to be the first person, the lady's maid, in the household and have two chambermaids subordinate to me, one of whom should even serve me, which seemed really ridiculous to me.]¹⁰

The language used by Josepha when describing her new, higher position is noticeably different from that in her other two letters. A quantitative and qualitative analysis of all three letters will show these differences (Section 3). The selection of features to be quantitatively analysed was based on the following criteria: 1) there are two co-existing variants, so the features are prone to IAV; 2) one of the variants is associated with orality, so that the degree of orality between and within the letters can be compared; 3) they are relatively frequent, which allows for some quantitative analyses; and 4) they represent language use on different levels (orthographic-phonetic, morphological, syntactical, graphemic). Furthermore, Josepha's lexical choices are investigated, which adds to the graphemic, grammatical and orthographic-phonetic differences we find both between and within Josepha's letters. These analyses and the following discussion of language-external and language-internal factors address two specific questions: a) To what extent does Josepha's language use differ in the three letters addressed to her sister? and b) How can the differences in Josepha's language use be explained?

3 Analysis

The analysis of the three letters is divided into different linguistic levels (Sections 3.1 to 3.5) and followed by a discussion of factors influencing Josepha's language use (Section 4). It should be pointed that the account of IAV provided here is by no means exhaustive, but the features selected should provide a good insight into some of the variation in Josepha's letters.

10 It is likely that Countess Brandeis refers to Maria Josepha v. Welsersheimb (1791–1869), who married Heinrich Graf von Brandis (1787–1869) – a member of the Tyrolian noble family Brandis (formerly Brandeis) (von Wurzbach 1857: 114) – on 19 September 1814 and lived with her family in the family-owned Maribor Castle (von Brandis 1889: 227–237) when Josepha was about to take on her new position in their household.

3.1 Variation on the orthographic-phonetic level

A common feature in all of Josepha's letters is the unrounding of the vowels /y, ʏ/ to /i, i/ (represented by the letters <ü> to <i>), /ø, œ/ to /e/, e/ (represented by <ö> to <ä> or <e>), and the unrounding of the first vowel in the diphthong /ɔɐ/ to /aɛ/ (represented by <eu> to <ei>).¹¹ This unrounding happened in most High German dialects from the thirteenth century onwards but was not adopted in (formal) writing (König et al. 2015: 149). In other words, rounded vowels constituted the written norm in the nineteenth century (and earlier), while unrounded vowels represented less prestigious spoken language use (Elspaß 2005: 451–453). Today, too, unrounded vowels are considered dialectal and, therefore, not used in formal writing, but they are still common in spoken language (cf. for Styrian dialects specifically, Hobel and Vollmann (2015: 11)).

In Josepha's letters, the dialectal unrounded vowels are overall slightly more common than rounded vowels (see Table 1).¹² It is noticeable that the percentage of rounded vowels increases from letter 1 (41%) to letter 3 (53%), the latter being the only letter in which the rounded vowels outnumber unrounded ones, if only by a small margin.

There are some consistencies in the spelling of vowels in Josepha's letters. The preposition *für* [for] is always spelled with <ü>, so are *Glück* [luck] (occurring twice in letter 3) and *glücklich* [happy] (letter 1). On the other hand, forms of the lemma *wünschen* [wish] (letter 1 and 3) as well as the preposition and affix *-über* are consistently spelled with the unrounded vowel <i>: <iberrascht> [surprised], <iber> [about], <woriber> [about which], <iberhaupt> [generally], <ibermorgen> [the day after tomorrow] (letters 2 and 3). Similarly, the noun *Hausleute* [servants] is always spelled with the unrounded diphthong <ei> (once in each of the three letters).

IAV concerning particular lexical items can, however, also be detected: The noun *Neuigkeit* [news] is spelled with <ei> in letter 2 but with <eu> in letter 3. The reflexive pronoun *euch* [you] is spelled <eich> in line 19 of letter 1 but with <eu> in line 41 of the same letter. And in letter 2, we see variation between <Münz> [coin] (occurring twice in lines 21 and 23) and <Minz> (line 22) in the same sentence:

¹¹ This unrounding does not apply to vowels in words that used to have diphthongs in Middle High German (MHG) (see section 4.2).

¹² The words are listed alphabetically. If the same word occurred more than once, the number of occurrences is provided in square brackets behind the word; e.g. *für* [4] means that *für* occurred four times in this particular letter. The same applies to all the other tables provided in this chapter.

von meiner Gnedigen Frau 1 Münz und von der freulein
1 Minz (letter 2, lines 21–22)

[from my mistress 1 coin and from her daughter 1 coin]

These instances of variation between rounded and unrounded vowels in the same lexical items may indicate some linguistic insecurity, which we can also observe in a few cases of what appear to be hypercorrections. Elspaß (2005: 452) notes that the insecurity between the spoken unrounded and the written rounded vowels led to the use of unrounded vowels in writing as well as hypercorrect forms. Hypercorrection occurs when a speaker or writer knows about a rule in the written language that does not apply in their spoken variety, and then applies this rule to forms where it does not apply in the written language, thus allowing us to deduce how language was used in their spoken variety (Langer

Table 1: Rounded versus unrounded vowels in Josepha's letters.

	Letter 1	Letter 2	Letter 3	Total
Rounded vowels				
<ü>	5 <i>für</i> [4], <i>Glücklich</i>	4 <i>für</i> , <i>Münz</i> [2], <i>Stück</i>	4 <i>für</i> [2], <i>Glück</i> [2]	13
<ö>	1 <i>möge</i>	0	2 <i>Größeres</i> , <i>könntets</i>	3
<eu>	1 <i>euch</i>	3 <i>freud</i> , <i>Freud</i> , <i>freulein</i>	4 <i>Freuden</i> , <i>Neuen</i> , <i>Neuigkeit</i> , <i>Teuer</i>	8
Total (rounded V)	7 (41%)	7 (44%)	10 (53%)	24
Unrounded vowels				
<i>	5 <i>erfielung</i> , <i>Faschings Wirst</i> , <i>winsche</i> [2], <i>winscht</i>	4 <i>iber</i> , <i>iberrascht</i> , <i>Minz</i> , <i>Schierze</i>	6 <i>iberhaupt</i> , <i>ibermorgen</i> , <i>winschen</i> [2], <i>wirde</i> , <i>woriber</i>	15
<ä>, <e>	2 <i>mächts</i> , <i>mägest</i>	2 <i>heflich</i> , <i>ungewentlicher</i>	2 <i>schöne</i> , <i>Schenen</i>	6
<ei>	3 <i>eich</i> , <i>Hausleit</i> , <i>Neienjahrwunsch</i>	3 <i>Hausleid</i> , <i>heier</i> , <i>Neiikeit</i>	1 <i>Haußleite</i>	7
Total (unrounded V)	10 (59%)	9 (56%)	9 (47%)	28

and Havinga 2015: 27). Such hypercorrect forms “are often found in speech or writing by people who strive to conform to the norms of printed or ‘educated’ language use” (Langer and Havinga 2015: 27). Josepha seems to have known that the norm required her to use <ü>, <ö>, and <eu> instead of <i>, <ä/e>, and <ei>, but she applied this knowledge or rule to cases that should have been spelled with unrounded vowels. These hypercorrect forms were not included in the table above. With regard to the use of <ü>, these are <Müchael> (letter 1), spelled <Michael> in letter 2, and <Augenblück> [moment] (letter 3). Concerning <eu>, Josepha’s spellings of <gefeuert> for *gefeiert* [celebrated], which appear once each in letter 2 and letter 3, and <Weinnachtfeuertäg> for *Weihnachtsfeiertage* [Christmas holidays] (letter 2) seem to be hypercorrections. Similarly, Josepha spells the word <schreibst> [(you) write] with <eu> once (<Schreubst> in letter 2), while all the other nine instances of present tense and infinitive forms of the lemma *schreiben* [write] in Josepha’s three letters were spelled with <ei>. Given the low number of these hypercorrections, no trends in their usage can be detected.

Generally, there is a great deal of IAV on the orthographic-phonetic level in Josepha’s letters, not just with regard to the rounding of vowels but also, for example, in the weakening of consonants. However, as shown above, there are some consistencies in Josepha’s use of different orthographic-phonetic variants, suggesting that the IAV we encounter in her letters is not completely random. The same is true for variation on the morphological level, as the following section shows.

3.2 Variation on the morphological level

The ending *-e* in nouns (e.g. *Sonne* [sun]) and verbs (e.g. *ich sitze* [I sit]) had been prescribed by influential grammarians, such as Johann Christoph Gottsched and Johann Christoph Adelung, since the eighteenth century, who considered the absence of final *-e* ‘wrong’ or described it as sounding ‘rough’ (Havinga 2018: 63–65, 84–87; Rössler 1997: 129–150; 238–252; Rössler 2005: 241–268, 314–320). The ending *-e* was also prescribed in the *Anweisung* (1813: 31–37), used as a textbook in the school in Straden (see Section 2). However, the Upper German *e*-apocope is still used in spoken as well as informal written language today. It is, therefore, not surprising that we can find instances of *e*-apocope in Josepha’s letters, all of which are listed in Table 2. With regard to nouns, *e*-apocope occurs in feminine singular nouns (e.g. *Stund* [hour]), strong masculine and neuter nouns in the dative singular form (e.g. *zu Haus* [at home]), and nouns of all genders in their

plural form (e.g. *Hausleit* [servants]).¹³ Concerning verbs, the ending *-e* can be absent in 1st person singular present indicative verbs (e.g. *hab* [(I) have]) and in subjunctive II forms (e.g. *het* for *hätte* [(I) would have]). The apocope of *-e* could also occur in imperative singular forms (e.g. *sag!* [say!]), for which the ending *-e* was prescribed by Gottsched and subsequent grammarians (Rössler 1997: 260) as well as in the *Anweisung* (1813: 66),¹⁴ but no such examples were found in Josepha's letters.¹⁵

As the percentages of *e*-apocope in Table 2 indicate, a considerable decrease of this feature can be observed in Josepha's third letter. While forms without final *-e* (56%) outnumber those with final *-e* (44%) slightly in the first two letters, we can only find five instances of *e*-apocope in the third letter, which equates to 18%. In the other 82% of cases, the ending *-e* is used in this letter. This suggests that letter 3 is more closely aligned to the printed German language norms of the mid-nineteenth century than the other two letters.¹⁶

Investigating the instances of *e*-apocope more closely, we can see that nouns with *e*-apocope outnumber those with final *-e* overall, whereas the opposite is true for verbs. Regarding nouns, two points are worth noting. Firstly, the third letter is the only one with an instance of the so-called 'dative *-e*' (see *im Hause* [in the household]), with all other strong masculine and neuter nouns in the dative singular form being used without final *-e*. In letter 2, for example, we find the prepositional phrase *zu Haus* [at home] without final *-e*. The dative *-e* was prescribed by eighteenth-century grammarians but was not widely used in handwritten texts until the 1820s (Havinga 2018: 216–217). It was clearly a feature of written language and probably hardly ever used in everyday spoken language by

13 The Upper German *e*-apocope can also occur in weak masculine nouns (e.g. *Hirt*) and mixed-declension neuter nouns (e.g. *Aug*) (cf. Rössler 2005: 241), but such occurrences cannot be found in any of Josepha's letters.

14 Singular imperative forms without the ending *-e* can, however, also be found in this textbook (see, for example, 1813: 60).

15 The only imperative form without final *-e* in Josepha's letters is *vergeß* [forget] (letter 2), which would neither have a final *-e* in the imperative in the German prescribed in the eighteenth and nineteenth centuries (see, for example, Gottsched (1748: 397) and the *Anweisung* (1813: 75), where *vergiß* is listed as the imperative form), nor in today's standard German (*vergiss*). This form was, therefore, not counted as an example of *e*-apocope. It could, however, be argued that Josepha considered this verb to be weak and she could have, therefore, spelled it with final *-e* (i.e. *vergesse*). In any case, not counting this form does not change the results from the quantitative analysis drastically.

16 While there was not one generally accepted 'standard German' variety in the nineteenth century, certain norms had been established in printed language as well as in writing by higher social classes by that time (cf. Elspaß 2005: 50–51, Havinga 2018).

Table 2: Ending -e versus e-apocope in Josepha's letters.

	Letter 1	Letter 2	Letter 3	Total
Ending -e				
nouns	2 fem. sg.: <i>Mühe</i> [2]	5 fem. sg.: <i>kälte</i> , <i>menge</i> , <i>Orade</i> , <i>Schierze</i> pl.: <i>worte</i>	4 fem. sg.: <i>menge</i> dat. sg.: <i>im Hause</i> pl.: <i>Hausleite</i> , <i>Stätte</i>	11
verbs	13 ind.: <i>Grüße</i> [2], <i>habe</i> [2], <i>hofs</i> , <i>verbleibe</i> , <i>werde</i> , <i>winsche</i> [2] imp.: <i>Grüße</i> [3] subj.: <i>möge</i>	11 ind.: <i>aussehe</i> , <i>beklage</i> , <i>bitte</i> [2], <i>habe</i> [2], <i>leide</i> , <i>verbleibe</i> imp.: <i>bette</i> , <i>Schreibe</i> subj.: <i>were</i>	19 ind.: <i>bitte</i> , <i>entferne</i> , <i>habe</i> [4], <i>kome</i> [2], <i>Reiße</i> , <i>verbleibe</i> , <i>werde</i> [2] imp.: <i>sage</i> [2], <i>verzeihe</i> subj.: <i>häte</i> , <i>Sohlte</i> , <i>solte</i> , <i>wirde</i>	43
Total (ending -e)	15 (44%)	16 (44%)	23 (82%)	54
e-apocope				
nouns	7 fem. sg.: <i>adres</i> , <i>Ruh</i> , <i>Stund</i> dat. sg.: <i>dem 9</i> <i>März</i> , <i>zum Mark</i> pl.: <i>Faschings</i> <i>Wirst</i> , <i>Hausleit</i>	13 fem. sg.: <i>Freud</i> , <i>geschichte</i> , <i>Minz</i> , <i>Münz</i> , <i>Staatpfahr</i> dat. sg.: <i>dem 23</i> <i>März</i> , <i>im Atvend</i> , <i>zu Haus</i> , <i>zum</i> <i>Markt</i> pl.: <i>Handschuh</i> , <i>Hausleid</i> , <i>Münz</i> , <i>Weinnachtfeuertäg</i>	3 dat. sg.: <i>dem 24</i> <i>August</i> pl.: <i>Monath</i> , <i>Schein</i>	23
verbs	12 ind.: <i>bekom̄</i> , <i>denk</i> , <i>hab</i> [4], <i>laß</i> , <i>Schenck</i> , <i>tank</i> , <i>wir</i> subj.: <i>het</i> [2]	7 ind.: <i>erblick</i> , <i>hab</i> [6]	2 ind.: <i>laß</i> , <i>Schreib</i>	21
Total (e-apocope)	19 (56%)	20 (56%)	5 (18%)	44

the majority of the population. It could have, therefore, been used as a grammatical symbol for prestige (cf. Elspaß 2005: 354). While there is just one instance of dative -e in Josepha's third letter, it does contribute to a sense of formality in this letter that is absent in the other two letters. Secondly, the only instance of the

plural noun *Hausleute* [servants] with the ending *-e* can be found in this third letter (*Hausleite*, in contrast to *Hausleit* and *Hausleid* in letter 1 and 2 respectively), possibly indicating a conscious attempt by Josepha to attune her last letter more toward the printed language norm of the time.

There are also some noteworthy points to make concerning verb endings. As mentioned above, Josepha always uses the final *-e* in imperative singular verb forms. Only two instances of *e*-apocope in subjunctive forms can be found: *het* for *hätte* [(he/I) would have], which appears twice in the first letter. In the third letter, on the other hand, Josepha uses the form *häte* in the 1st person subjunctive, with final *-e* and Umlaut. Variation in the use of the ending *-e* can also be found within the same letter, particularly in the rather frequent verb *habe*, which is spelled with *-e* twice in letter 1 and letter 2 but four times and six times without *-e* in these two letters respectively. It is striking that the ending *-e* is then used almost exclusively in the third letter, where just two instances of *e*-apocope in the 1st person indicative present tense can be found: *laß* and *Schreib*. Both of these occur at the end of the letter and could be attributed to language-external factors, which (together with language-internal factors) are discussed in section 4.

3.3 Variation on the syntactic level

In this section, the use of the perfect versus preterite tense as one of the syntactic structures that can indicate differences in style is investigated in Josepha's letters. In contrast to the features analysed above, both the perfect and preterite tense are used in printed formal German. However, the latter was (and is) mainly confined to written language, particularly in the Upper German language area, since it had been replaced by the analytic perfect form in spoken German.¹⁷ In other words, using the perfect is the default in Austria (and other Upper German dialect areas), whereas the use of the preterite indicates a more formal style.

Unfortunately, Josepha does not use the past tense in her third letter as frequently as in the previous two letters. While she recounts events of the past in

17 Cf. Fischer (2018) for a comprehensive description of this process. Fischer's (2018: 15–27) analysis of Georg Wenker's *Sprachatlas des Deutschen Reichs* (1888–1923) shows that in the Upper German dialects (Alemannic, Swabian, and Bavarian), the preterite has mostly been replaced by the perfect, even in high frequency words, such as *kamen* [(we/they) came] and *wollten* [(we/they) wanted]. Only the 1st and 3rd person singular preterite form of the verb *to be* (i.e. *war*) was still widely used in these dialects in Wenker's survey (Fischer 2018: 23–25). While Fischer restricts her analysis to Germany, the Bavarian and Alemannic dialect areas stretch into modern-day Austria, where the same replacement of preterite forms can be observed.

the first two letters (such as celebrating her name day), she mainly writes about future events (i.e. her new position) in her last letter. Despite the low numbers of verbs in past tense in this third letter, a clear difference between Josepha's first two letters and her last letter can be observed with regard to the use of preterite forms, as Table 3 shows.

Table 3: Use of preterite versus perfect forms in Josepha's letters.

	Letter 1	Letter 2	Letter 3	Total
preterite forms	0 (0%)	4 (18%) <i>war</i> [3] [<i>was</i>], <i>waren</i> [<i>were</i>]	3 (75%) <i>glaubten</i> [<i>thought</i>], <i>Mahlte</i> [here: <i>touted</i>], <i>vorkam</i> [<i>seemed</i>]	7
perfect forms	11 (100%) <i>gefunden hat</i> [<i>found</i>], <i>hab...gesagd</i> [<i>said</i>], <i>hab...geschriben</i> [<i>wrote</i>], <i>hab(e)...wohlen</i> [3] [<i>wanted</i>], <i>hast...</i> <i>gewunschen</i> [<i>wished</i>], <i>hat...geben</i> [<i>gave</i>], <i>hat...versprochen</i> [<i>promised</i>], <i>hat...</i> <i>verweilt</i> [<i>stayed</i>], <i>kommen ist</i> [<i>came</i>]	18 (82%) <i>bin...gangen</i> [<i>went</i>], <i>erstaund habe</i> [<i>astonished</i>], <i>hab(e)...bekommen</i> [2] [<i>got</i>], <i>hab...gedacht</i> [<i>thought</i>], <i>hab...gefeuert</i> [<i>celebrated</i>], <i>hab...gekauft</i> [<i>bought</i>], <i>hab...vergesen</i> [<i>forgot</i>], <i>hab...wolen</i> [<i>wanted</i>], <i>haben...wohlen</i> [<i>wanted</i>], <i>hat...aufgezogen</i> [<i>raised</i>], <i>hat gekostet</i> [<i>cost</i>], <i>hat...</i> <i>gesagt</i> [<i>said</i>], <i>iberrascht hast</i> [<i>surprised</i>], <i>ist...vorgekomen</i> [<i>seemed</i>], <i>komen ist</i> [2] [<i>came</i>], <i>verzert hat</i> [<i>consumed</i>]	1 (25%) <i>habe...</i> <i>geschriben</i> [<i>wrote</i>]	30

In her first letter, Josepha does not use any preterite forms. In the second letter, four instances of preterite forms can be found. These are, however, restricted to the past tense of the verb *to be* in the third person singular and plural (*er/es war* [he/it was], *sie waren* [they were]). All other verbs referring to the past are in the perfect. In the third letter, Josepha uses the perfect just once, at the end of her letter: *ich habe ihm schon etwas geschriben* [I have already written to him] (letter 3, lines 36–37). Only three other verbs refer to the past in this letter, all of which are in the preterite:

man **Mahlte** mir diesen Dienst
zu einen so Gläzeden Gänzenten Himmel auf (letter 3, lines 10–11, [my emphasis])
[this position was **touted** so much]

was mir sehr lächerlich **vorkam** (letter 3, line 15, [my emphasis])
[which **seemed** really ridiculous to me]

wir **glaubten** bis zum lessen hinunter
zu kommen (letter 3, lines 28–29, [my emphasis])
[we **thought** we would travel down (to Straden) for the wine harvest]

The use of the verb *vorkam* [seemed] is particularly interesting since Josepha uses the same verb in perfect in her second letter: *den mir ist es vorgekommen als were es der Alte gute Alois* [because it **seemed** to me as if he was the good old Alois] (letter 2, lines 29–30, [my emphasis]). While there are merely three instances in Josepha's last letter, the use of the preterite is salient and indicates a more formal style than in her previous letters. Before discussing this point further in Section 4, the following two sections investigate variation on the graphemic and the lexical level.

3.4 Variation on the graphemic level

Punctuation was an integral part of the standardised textbooks on German language in the nineteenth century. The *Anweisung* (1813) listed the following punctuation marks and described their usage: question mark, exclamation mark, full stop, colon, semicolon, comma, quotation marks, hyphen (which could also be used to divide words), parenthesis, dash, ellipsis, apostrophe, indication marks (e.g. the asterisk), section sign, and marks to indicate pronunciation. With regard to the full stop and comma, the punctuation marks used most frequently by Josepha, the *Anweisung* (1813: 127, my translation) explains that a full stop is used “at the end of a period and every full sentence, when the voice drops notably and when there is a strong break when speaking or reading”. A comma, on the other hand, “signifies the shortest break and divides all smaller parts of a sentence” (*Anweisung* 1813: 130, my translation). The *Anweisung* (1813: 130–131) then specifies that a comma is used before all relative pronouns, before and after appositions as well as inserted clauses, in listings when words are not linked with *and* or *or*, as well as between main and subordinate clauses. These prescriptions are in line with today's punctuation rules but still linked to prosody.¹⁸

¹⁸ Besch (1981) explains that the earlier rhythmic-prosodic principle was replaced by the syntactic-grammatical principle of punctuation during the eighteenth century, a development he

Out of the range of punctuation marks discussed in the *Anweisung*, Josepha only uses the full stop, comma, and hyphen or division sign. Additionally, she once uses the old-fashioned virgule (letter 2), which was (at least in printed texts) replaced by the comma in the eighteenth century (Nübling et al. 2013: 227, Rössler forthcoming) and not mentioned in the *Anweisung*. To indicate breaks, Josepha also uses two successive commas once in letter 1 and once in letter 2, which is also not discussed in the *Anweisung* (see Table 4). Since the full stop and the comma are the punctuation marks most frequently used by Josepha, these are analysed in more detail.

Table 4: Punctuation in Josepha's letters.

	Letter 1		Letter 2		Letter 3	
full stop	4	20%	1	4%	7	41%
comma	14	70%	18	72%	8	47%
hyphen/division sign	1	5%	4	16%	2	12%
virgule	0	0%	1	4%	0	0%
other	1 (,,)	5%	1 (,,)	4%	0	0%
total	20		25		17	

Table 4 shows that Josepha used the comma much more frequently than the full stop in her first two letters. In letter 1, we find only four instances of the full stop. The first one is placed after the first, very formulaic sentence of the letter. The other three instances are at the end of the letter, two of them separating a sudden thought from the formulaic list of greetings before and after this particular sentence. Furthermore, Josepha ends a complex sentence comprising three main clauses and five subordinate clauses with a full stop. Whether the complexity of this sentence constitutes a factor for the placement of this full stop is difficult to determine with such a small amount of data. It is also difficult to find explanations for Josepha's single use of the full stop in letter 2. It neither appears in a formulaic sentence nor at the end of a complex sentence. What is striking, however, is that Josepha uses more full stops in her third letter, particularly in her description of her new position as a lady's maid, in which five out of the seven instances of full stops occur.

While the more frequent use of full stops in letter 3 may indicate a closer alignment to the norms for punctuation prescribed in textbooks, Josepha's dis-

links to the change from reading texts out aloud to reading them quietly. Nübling et al. (2013: 226) note the difficulties in verifying Besch's hypothesis, since syntactic units can correlate with rhythmic-prosodic units.

tion between full stop and comma remains unclear. In all three letters, she frequently uses a comma where one would expect a full stop if the prescriptions in textbooks were followed. Josepha also places commas between main clauses and subordinate clauses when they are introduced with conjunctions, such as *aber*, *weil* or *dass*. However, there are more examples where these conjunctions are not preceded by a comma. Neither does she use commas in listings, as the following examples illustrate:

von der Blatlin hab ich
eine Schierze ein halstuch zwey barr Handschuh bekommen (letter 2, lines 19–20)
[I got an apron, a scarf, two pairs of gloves from Mrs Blatli]

einen Schenen Gruß und
Handkuß an Vatter und Mutter alle Haußleute (letter 3, lines 38–39)
[greetings and a kiss on the hand to father and mother, all servants]

The lack of punctuation is a feature that all three letters share. In letter 1, full stops and commas are only used in 18 cases, out of 43 cases (i.e. 42%) where the reader could expect either a full stop or a comma. This ratio is similar in the other two letters: 20 (including the virgule, which is used instead of a comma before a subordinate clause introduced with *weil*) out of 43 expected punctuation marks in letter 2 (47%) and 15 out of 37 in letter 3 (41%). While the full stop is used more frequently in letter 3, Josepha's use of punctuation marks remains sporadic and, apart from her not using commas in listings, it is difficult to determine any consistent conditioning factors for the (non)occurrence of either the comma or the full stop. Some of the variation we find with regard to punctuation in Josepha's letters could, therefore, be considered an example of non-conditioned IAV. Before discussing this kind of variation further in Section 4, Josepha's lexical choices are analysed in the following section.

3.5 Variation on the lexical level

In addition to the quantitative analysis above, a qualitative analysis of Josepha's lexical choices reveals differences between her letters. The following comparison of the first few lines of the beginning of each letter uncovers some of these differences:

Letter 1:

Liebe Maria

Ich GrüÙe dich Viehlmahl und winsche das mein Schreiben
auch alle in bester gesundheit andrefen möge wie ich es
von Herzen hofe. Liebe Maria schon lang hab ich dir
Schreiben wohlen aber ich habe so schwer Zeit das ich bey nan
Jede Vierdel Stund ausmessen muß, (letter 1, lines 3–8)

[Dear Maria,

I greet you warmly, and I wish that my letter will also find you all in the best of health, which I sincerely hope it will. Dear Maria, I have wanted to write to you for a long time, but I have so little time that I almost have to keep track of every quarter of an hour (letter 1, lines 3–8)]

Letter 2:

Liebe Maria

Ich und die Mutter GrüÙen dich viehlmahl und uns freud es
recht sehr das du uns mit einer so geschwinden Antwort iberrascht
hast, aber wenn du uns nur das geschriben hetes was wir haben
wiessen wohlen von Michael Franz und Heinnrich, wie es ihnen
geth, (letter 2, lines 2–7)

[Dear Maria,

I and mother greet you warmly, and we are very happy that you have surprised us with such a quick reply, but if you had only written what we wanted to know about Michael, Franz and Heinrich, and how they are doing (letter 2, lines 2–7)]

Letter 3:

Liebe Schwester

Ich muß dir doch diese Große Neuikeit Schreiben
woriber du dich sehr erstaunen wirst, ich entferne mich
Jetz gänzlich von Gratz. wohl ist es mir sehr leid umd meine
Liebe Mutter alle bekanden iberhaupt um Gratz was mir
imerhin sehr Teuer ist, Jedoch ein härres Glück zith mich
zu fort. (letter 3, lines 2–8)

[Dear sister,

I just have to write to you about this big news, which will astonish you. I am now distancing myself from Graz completely. I am certainly sorrowful about leaving my dear mother and generally all my acquaintances around Graz, which is still very precious to me. However, an immense opportunity pulls me away.]

The first two letters start with the greeting “Dear Maria”, while Josepha chooses to address Maria with “Dear Sister” in her third letter, which could be considered slightly more formal (cf. Elspaß 2005: 160). All three letters continue with a formulaic sentence before starting the more creative part of the letters. It is noticeable that letter 3, particularly Josepha’s description of her new position as

a lady's maid, contains more unusual vocabulary than the other two letters, such as *entferne mich* [distance myself] (rather than, for example, *fortgehen* [move away], which is used once in letter 2), *gänzlich* (rather than *ganz*, both of which can be translated as *completely* but the latter is certainly more common and once used adverbially in letter 2), and *jedoch* [however] (rather than *aber* [but], which Josepha uses eight times in letter 1, three times in letter 2, and twice in letter 3, with *jedoch* only being used in this last letter).¹⁹ These are not the only lexical choices that result in a more formal appearance of Josepha's third letter, but it is not always possible to identify less formal equivalents in the other two letters owing to the limitations of the data. One more point to note is the way Josepha closes her letters, using the more formal *lebt indessen wohl* [farewell] in letter 3 instead of *ich GrüÙe dich nochmal* [I greet you again] in letter 1 and *wir GrüÙen dich nochmal* [we greet you again] in letter 2. All three letters, however, end in the formulaic phrase *Ich verbleibe deine liebende Schwester Josepha P.* [I remain your loving sister Josepha P.].

In summary, variation on various levels can be found both within and between Josepha's letters. The analyses above reveal that letter 3 differs from the other two letters in lexical choice, more use of the preterite and the full stop, as well as fewer instances of *e*-apocope and a slightly lower percentage of the dialectal unrounded vowels. While the letters analysed are rather short and the number of tokens for these features is, therefore, low, the data offer valuable insights into IAV in the nineteenth century. The following section discusses factors that may have contributed to instances of IAV in the letters, drawing on the theories discussed in Section 1.

4 Explanations for Josepha's intra-individual variation

This section looks at reasons for the IAV we can observe in Josepha's letters. It is argued that much of the variation is not random and can be attributed to either language-external factors (Section 4.1) or language-internal factors (Section 4.2). However, there are also instances of what seems to be non-conditioned IAV, such

¹⁹ A search for the frequency of these pairs of words in the *DTA-Gesamt+DWDS-Kernkorpus*, which consist of about 350 million tokens (DWDS n.d.), for the years 1840–1849 resulted in the following frequencies per million tokens: *fortgehen*: 15.21 versus *sich entfernen*: 3.04, *ganz* (used adverbially): 176.57 versus *gänzlich*: 98.77; *aber*: 3605.84 versus *jedoch*: 293.55. This shows that the variants used in Josepha's third letter are indeed more unusual.

as Josepha's sporadic use of punctuation marks. While her use of full stops and commas is conditioned by language-internal or language-external factors (see, for example, Josepha's use of commas between main and subordinate clauses, as prescribed in textbooks), it cannot be predicted when she uses a punctuation mark and when she does not (there are, for example, many subordinate clauses that are not preceded by a comma). This means that no consistent conditioning factors can be determined for her use of punctuation marks or lack thereof and neither language-external nor language-internal factors can fully explain their (non)occurrence. The use of other features, however, seems to be functionalised or conditioned, as discussed in the following sections.

4.1 Language-external factors

While historical linguists cannot elicit different styles during sociolinguistic interviews and have to work with the material that has survived, Labov's attention to speech approach (1972) can be applied to the study of written texts from the past. As mentioned in Section 1.1, Schiegg (2018: 106–107) states that attention to writing can increase at the more formulaic end of a letter. The end of Josepha's first letter is interesting in this regard, as she uses the ending *-e* on verbs in the formulaic last sentence. However, in the sentence before, which she adds spontaneously as she had just remembered something, we can find three instances of *e*-apocope on verbs (*denk* [remember], *Schenck* [give], *bekom̄* [get]) as well as one instance on a plural noun (*Faschings Wirst* [carnival sausages]).

gerade denk ich
 auf die Faschings Wirst aber die Schenck ich euch weil ich so keine
 bekom̄. ich Grüße dich nochmal und winsche von dir ein baltiges
 Schreiben und verbleibe deine Liebende Schwester Josepha P. (letter 1, lines 40–43)

[I've just remembered the carnival sausages, but I give them to you because I don't get any like this. I greet you again and wish that you will write soon and remain your loving sister Josepha P.]

It could be argued that Josepha pays less attention to her writing in the spontaneous sentence and we can, therefore, observe a number of instances of *e*-apocope, which is associated with orality. It is, however, interesting that, in this spontaneous sentence, she spells the reflexive pronoun *euch* [you] with <eu> rather than using <eich> as she did on the first page of the same letter. In the following formulaic sentence, however, we can see the unrounding of the vowel in *winsche* [wish]. As noted in Section 3.1, forms of the lemma *wünschen* [wish] (letter 1 and 3)

are consistently spelled with the unrounded vowel <i> in Josepha's letters. Rather than resulting from a lack of attention, the use of the unrounded vowel in *wünschen* may be due to Josepha memorising this form as part of routine formulae, such as "Ich Grüße dich Viehlmahl und winsche das mein Schreiben auch alle in bester gesundheit andrefen möge" in letter 1 [I greet you warmly, and I wish that my letter will also find you all in the best of health].

The handwriting itself can also provide cues about the writer's attention. A rushed and messy looking handwriting could indicate that less attention was paid to the writing process and, following Labov's theory, maybe also to the language used. At the end of her third letter, Josepha apologises for her "bad writing", probably referring to her handwriting rather than her language use.

verzeihe mir meine Schlechte Schrift,
ich habe keinen Augenblück mehr Zeit
es ist Elf Ur und meine Augen
Schließen sich (letter 3, lines 40–43)

[excuse my bad writing. I have not a moment to spare. It is eleven o'clock, and my eyes are closing]

Elspeß (2005: 151) found similar apologies in the letters he analysed, which, he argues, refer to the writers' calligraphic skills rather than orthographic or grammatical 'correctness'. At the same time, such apologies can signal a high degree of awareness and effort. Indeed, despite Josepha's tiredness and her excitement about her new position, which seem to result in relatively messy handwriting with more corrections than in the other letters (see Figures 1 and 2 for a comparison between letter 2 and 3),²⁰ it is this third letter that is most closely aligned with the printed language norms of the time. Nevertheless, some of the features associated with orality in Josepha's third letter may be attributed to her tiredness. As pointed out in Section 3.2, the only two instances of *e*-apocope in verbs in this letter (*laß* [let] and *Schreib* [write]) occur at the end of the letter (line 38 and line 45 respectively out of 49 lines). Similarly, Josepha's only use of the perfect (*ich habe ihm schonn etwas geschriben* [I have already written to him]) rather than preterite can be found towards the end of her letter (lines 36–37). While a similar pattern cannot be detected for the use of unrounded vowels, the hypercorrect form *Augenblück* [moment] could also be attributed to tiredness and lack of attention.

While Josepha's tiredness towards the end of her third letter may have influenced her language use and while her excitement may have affected her hand-

²⁰ The number of corrections in each letter are as follows: letter 1: 2, letter 2: 3, letter 3: 8.

von Gusty am 20 März 1848

Liebe Maria

Ich und die Mutter freuen sich sehr über die Nachricht und sind sehr
 froh dass du dich mit mir so gütlich und freundlich auseinandersetzt,
 aber wenn du mir immer die gütlichen Briefe schickst und wir sie
 einfach lesen von. Mir ist Freude im Herzen und ich bin
 froh, die Freude ist die ich immer noch habe alle gütlich und
 ich sehr lieb aber sie glauben das wird sehr lange
 unvollständiger Briefe werden, das sie immer Zeitung Besuche
 von 60. Jahren was, so man das 60. Jahren auf der Welt,
 blauen Augen hat, so wie sie und mit 60 Jahren werden
 man sich keinen so ~~un~~ langweiligen Briefe, das man
 mir nur nicht von man nicht von hätte und fast keine gütlich,
 seit dieser Augen mich, so gütlich mir ich immer in
 gütlichen Briefen bin, und was ich mir zu jenen behagen
 so haben sie mir noch nicht so viel ich nicht so wird leben,
 Liebe Maria meine Pflichten sind ich mit großer
 Freude erfüllt, ich habe eine ganze Menge Lieder und
 von den die Mutter aber nicht von den Lieder sind
 eine Menge von gütlich ich sehr gerne zu schreiben
 von meiner Quinzen von 1. März und von den
 1. März, Deine Mutter hat ich mir ein ganzes Buch,

Figure 1: Josepha's second letter (first page).

writing, Josepha's third letter shows fewer features associated with orality than her other two letters. Labov's attention to speech theory can, therefore, not fully explain the variation we see between Josepha's earlier two letters and her last letter.

Bell's (1984) audience design may seem less relevant, since the audience in Josepha's three letters remains the same (i.e. her sister). However, his referee design can provide explanations for the differences between Josepha's last letter

dienstag auf die Nacht werde ich schon in der Marburger Burg Schlafen [the day after tomorrow, i.e. Tuesday evening, I will already be sleeping in Maribor Castle] (letter 3, lines 17–19). It is plausible to suggest that Josepha associates the description of her new position with the countess she is going to work for and, therefore, aligns her style to the language used by the countess or, more generally, by higher social classes. In other words, Josepha does not adjust her language use to her sister, the direct addressee of her letters, but to an absent group of referees who will not read her letter.

In line with Bell (1984: 151), it could also be argued that the IAV we see in Josepha's letters derives from and echoes the social variation that existed in nineteenth-century Austria. This implies that socially distinctive variants, such as the dative *-e*, existed and that Josepha was aware of their prestige. The fact that Josepha keeps using unrounded vowels quite frequently in her third letter may indicate that she was less aware of their non-prestigious status. The analysis presented here did, of course, only look at a few variables – other variables, such as the use of definite articles before proper nouns, could also be investigated. Nevertheless, we can assume that Josepha's letters only reveal a part of the linguistic variation present in her speech community, if we follow Bell's (1984: 152) suggestion that “the range of style shift is less than the range of social differentiation available”.

While Bell's theories may provide some explanations for Josepha's shifting in style between her first two letters and her third letter, they do not capture Josepha's conscious and “strategic” (cf. Traugott and Romaine 1985) attempt to project a new identity based on the higher social status she gained with her new position as a lady's maid to a countess. It could, therefore, be argued that the speaker design theory offers a more comprehensive approach to explaining Josepha's IAV. The analyses in Section 3 have shown that Josepha changed her language use when she was about to take on a higher status in the hierarchy of servants by starting to work as a lady's maid for a countess. By choosing a more formal style, indicated by the use of the preterite and certain lexical choices, and by aligning her third letter closer to the printed language norm of the time (see the fewer instances of *e*-apocope), Josepha creates an identity different from her first two letters. The language use in Josepha's third letter may be intended to convince the addressee (and maybe even herself) that she is worthy of her new position and that she fits into a household of higher social status. Her letters, thus, illustrate that Josepha was not just aware of different styles and social variables but that she could also employ them strategically, at least to some extent, to project different versions of her social and personal identity (cf. Coupland 2002: 200). Some of Josepha's linguistic choices can, therefore, be considered deliberate performances rather than situational reflexes (cf. Coupland 2002: 209).

With reference to Auer's (2015) study of stylistic variation in historical handwritten letters (see Section 1.1), who found that writers with better schooling and more writing practice have a greater repertoire to draw upon and can, therefore, be more creative with language, Josepha could be considered a well-practised writer, even if she continues to use certain dialectal features, such as the unrounding of vowels. Like all the writers investigated by Auer, Josepha is clearly able to create different social identities, strategically using the linguistic repertoire at her disposal. In contrast to the letters analysed by Auer (2015), all of Josepha's letters are addressed to the same person, which supports the idea that Josepha deliberately and consciously projects a different social persona through the stylistic choices in her third letter despite the addressee not changing (cf. Coupland 2002: 197). Josepha does not just use group norms through her individual stylistic choices but also, as Coupland (2002: 198) would point out, reproduces them. As Kocka (1990: 145) notes more generally, maids would get to know the way of life and norms of higher social classes (including their education and language) and would then diffuse selected and maybe slightly altered norms in the lower social classes. Josepha's conscious use of these norms may have even influenced her sister's writing, which, unfortunately, is not available to us.

In summary, a great deal of the IAV we can observe within and between Josepha's letters can be explained by language-external factors. However, not all variation can be explained by Josepha's tiredness (or lack of attention), her adjustment to referees, and her strategic use of language in order to project an identity of higher social status. Language-internal factors, too, offer explanations for certain instances of variation in the three letters.

4.2 Language-internal factors

As the analyses in Section 3 have shown, the unrounding of vowels, the use of *e*-apocope and the use of the perfect varies not just between but also within Josepha's letters. While some of Josepha's uses of these variants, such as the dative *-e* used in letter 3 (*im Hause* [in the household]), may be explained by Josepha's conscious choice to write in a more formal style in the third letter, some of the variation is probably due to language-internal factors.

Concerning the unrounding of vowels, it is noticeable that Josepha never uses unrounded vowels in words that used to have diphthongs in Middle High German (MHG). These were not monophthongised in the Styrian (and other Upper German) dialects. Forms of the lemma *grüßen* (MHG *grüezen*), the noun *Mühe* (MHG *müeje*), and derivations of the adjective *früh* (MHG *vrüeje*) were always spelled with <ü> by Josepha. She could have used the dialectal diphthong

in these cases, e.g. *griäßen*. This, however, never appears in her letters, maybe because such dialectal diphthongs were more salient and, therefore, avoided in writing.²¹

With regard to the *e*-apocope, it is worth noting that in plural nouns with an Umlaut, i.e. *Faschings Wirst* [carnival sausages] with the unrounded Umlaut in letter 1 and *Weinnachtfeuertäg* [Christmas holidays] in letter 2, the plural is not double marked (Umlaut plus final *-e*). Instead, the final *-e* is deleted, perhaps because the plural is already indicated by the Umlaut. Similarly, the word *Hausleute* [servants, lit. house people] is written without final *-e* in letter 1 (*Hausleit*) and letter 2 (*Hausleid*), maybe owing to the fact that the word ‘Leute’ or ‘Leut’ [people] refers to several individuals anyway. The fact that Josepha spelled this word with final *-e* in her last letter may be explained by the language-external factors discussed in the previous section. In that last letter, we also find the plural noun *Städte* (spelled *Stätte* [towns]) with Umlaut and final *-e*. It, therefore, seems that this language-internal factor may have influenced Josepha’s language use in the first two letters but not in the third, where we find plural forms with Umlaut and the ending *-e*. It is also noticeable that Josepha never attaches the dative *-e* to terms denoting months: *dem 9 März* [9th March] in letter 1, *dem 23 März* [23rd March] in letter 2, *dem 24 August* [24th August] in letter 3. Similarly, other words denoting periods of time, i.e. *Stund* [hour] in letter 1 and *Monath* [months] in letter 3, occur without final *-e*. It may be the case that certain lexical items, in particular those denoting periods of time, are more likely to be apocopated. The *e*-apocope in the plural forms *Handschuh* [gloves], *Münz* [coins] (both letter 2) and *Schein* [notes] (letter 3) could also be conditioned since they are preceded by numerals, which make it clear that a plural form follows.²²

Further language-internal factors conditioning the use of *e*-apocope were noted by Fleischer et al. (2012) in their comparison of two print editions of Goethe’s *Die Leiden des jungen Werthers* (1774/1787). They found that *e*-apocope is uncommon in both editions of Goethe’s epistolary novel when the words have

21 Evidence for the stigmatisation of dialectal diphthongs can already be found in the eighteenth century. The *Teutsches Namen oder Lehrbüchl* (c. 1750: 30) describes dialectal forms with a diphthong, such as *Buech* (for *Buch* [book]) and *Bruede* (for *Bruder* [brother]), as ‘bad’ (*übel*) (cf. Havinga 2018: 31–32). The lack of dialectal diphthongs may, therefore, be a result of prescriptions and stigmatisations, i.e. language-external factors. In contrast, there are no examples with unrounded vowels in this schoolbook, nor were they explicitly discussed in standardised school textbooks used in Austria before 1848.

22 Fleischer et al. (2012: 343) offer this explanation for instances of *e*-apocope in plural forms in their comparison of two print editions of Goethe’s *Die Leiden des jungen Werthers* (1774/1787). The authors do, however, note that there are also forms with final *-e* that are preceded by numerals (Fleischer et al. 2012: 343).

a strong morphological function, i.e. in plural and strong dative masculine nouns as well as verbs in the 3rd person singular indicative preterite (Fleischer et al. 2012: 345). In words with a weak morphological function (weak nouns and verbs in the 1st person singular indicative present), *e*-apocope can be motivated by hiatus avoidance (Fleischer et al. 2012: 345). In Josepha's letters, however, it is unclear whether these factors have an impact on the use of *e*-apocope. While there are examples of *e*-apocope leading to hiatus avoidance (particularly when the verb *hab* [have] is followed by *ich* [I]),²³ there are numerous counter-examples, both when the ending *-e* is used despite the following word starting in a vowel (e.g. *werde ich* [I will] in letter 1 or *habe eine* [have a] in letter 2) and when *e*-apocope occurs even though the following word does not begin in a vowel (e.g. *ich Tank dir* [I thank you] in letter 1).

In contrast, Josepha's use of the preterite in letter 2 can be explained by language-internal factors. The preterite only occurs for the frequent words *war* [was] and *waren* [were], which are easier to form than the perfect (i.e. *ist/sind gewesen*). Generally, however, the analytical perfect form is easier to decode (Fischer 2018: 259) and may, therefore, be preferred in the first two letters (cf. the 'principle of least effort'). The use of preterite forms we encounter in letter 3 can then be best explained by language-external factors, as argued above and in the following conclusion.

5 Conclusion

An analysis of the three nineteenth-century private letters by Josepha P. to her sister revealed IAV both within and between her texts. Particularly noticeable are differences between the first two letters and the last letter. In her third letter, Josepha uses a more formal style, as her choice of more elaborate vocabulary and her use of the preterite prove. Furthermore, this letter is more aligned with the printed norm of German of the time, with fewer instances of *e*-apocope. However, variation between rounded and unrounded vowels is common and only some of it can be explained by language-internal factors (see Section 4.2). Instances of hypercorrection with regard to this feature, too, reveal Josepha's linguistic insecurity when the written norm differs from spoken language. This also becomes apparent in Josepha's sporadic use of punctuation, with conditioning factors for

²³ Rössler (2005: 318), too, notes that the auxiliary *haben* is frequently apocopated in the 1st person singular indicative when followed by a word starting with a vowel, providing *hab ich* [I have] as an example.

their (non)occurrence being difficult to determine. Variation on the graphemic level, therefore, seems less systematic than on the other linguistic levels analysed, and variation on the orthographic-phonetic level appears to be less intentional than variation on the morphological, syntactic, and lexical level.

Both language-internal and language-external factors have been identified to trigger IAV in Josepha's letters. The latter need to be considered in order to explain the differences between Josepha's first two letters and her last. Labov's (1972) attention to speech theory offers some explanation for the use of particular variants in specific contexts and Bell's (1984) audience design approach provides reasons behind Josepha's IAV. But to capture the inter-play between style and context we see in Josepha's letters, we also need to consider the speaker design approach (Coupland 1996). Rather than observing random variation between the letters, we can see that Josepha makes conscious and strategic choices to create a social persona that projects a higher social status in her third letter, depicting herself as being worthy of her new position as a lady's maid to a countess. And this despite the fact that she is addressing the same person, her sister. Josepha was aware of different social language norms and had a repertoire of variants available that she could, at least to some extent, use flexibly and creatively. Her letters, thus, also provide an insight into nineteenth-century language variation, allowing us to describe language use at that time more accurately.

References

- Anweisung die deutsche Sprache richtig zu sprechen, zu lesen und zu schreiben. Nebst Beyspielen von Briefen und andern schriftlichen Aufsätzen. Zum Gebrauche der Trivial=Schulen in den k. k. Staaten.* 1813. Linz: Joseph Feichtinger.
- Auer, Anita. 2015. Stylistic variation. In Anita Auer, Daniel Schreier & Richard J. Watts (eds.), *Letter writing and language change*, 133–155. Cambridge: Cambridge University Press.
- Bell, Allan. 1984. Language style as audience design. *Language in Society* 13. 145–204.
- Bell, Allan. 2002. Back in style: Reworking audience design. In Penelope Eckert & John R. Rickford (eds.), *Style and sociolinguistic variation*, 139–169. Cambridge: Cambridge University Press.
- Berger, Franz Severin & Christiane Holler. 1997. *Von der Waschfrau zum Fräulein vom Amt: Frauenarbeit durch drei Jahrhunderte.* Wien: Ueberreuter.
- Besch, Werner. 1981. Zur Entwicklung der deutschen Interpunktion seit dem späten Mittelalter. In Kathryn Smits, Werner Besch & Victor Lange (eds.), *Interpretation und Edition deutscher Texte des Mittelalters: Festschrift für John Asher zum 60. Geburtstag*, 187–206. Berlin: Schmidt.
- Brandis, Ferdinand Graf von. 1889. *Das Familienbuch der Grafen von Brandis.* Baden bei Wien: Verlag des Verfassers.

- Coupland, Nikolas. 1996. Language, situation, and the relational self: Theorising dialect-style in sociolinguistics. Paper presented at Stanford Workshop on Stylistic Variation, Stanford, CA.
- Coupland, Nikolas. 2002. Language, situation, and the relational self: Theorizing dialect-style in sociolinguistics. In Penelope Eckert & John R. Rickford (eds.), *Style and sociolinguistic variation*, 185–210. Cambridge: Cambridge University Press.
- DWDS. n.d. Statistische Auswertungen. URL: <https://www.dwds.de/d/ressources> [accessed 04.09.2020].
- Elsaß, Stephan. 2005. *Sprachgeschichte von unten. Untersuchungen zum geschriebenen Alltagsdeutsch im 19. Jahrhundert*. Tübingen: Max Niemeyer.
- Elsaß, Stephan. 2012. The use of private letters and diaries in sociolinguistic investigation. In Juan Manuel Hernández-Campoy & Juan Camilo Conde-Silvestre (eds.), *The handbook of historical sociolinguistics*, 156–169. Oxford: Wiley-Blackwell.
- Finegan, Edward & Douglas Biber. 2002. Register variation and social dialect variation: The register axiom. In Penelope Eckert & John R. Rickford (eds.), *Style and sociolinguistic variation*, 235–267. Cambridge: Cambridge University Press.
- Fischer, Hanna. 2018. *Präteritumschwund im Deutschen. Dokumentation und Erklärung eines Verdrängungsprozesses*. Berlin & Boston: De Gruyter.
- Fleischer, Jürg, Katrin Kuhmichel & Augustin Speyer. 2012. Sprachveränderung bei Goethe. Der auslautende Schwa in den Werther-Fassungen von 1774 und 1787. In *ZGL* 40(3). 305–351.
- Giles, Howard & Peter F. Powesland. 1975. *Speech style and social evaluation*. London: Academic Press.
- Giles, Howard & Phillip M. Smith. 1979. Accommodation theory: Optimal levels of convergence. In Howard Giles & Robert St. Clair (eds.), *Language and social psychology*, 45–65. Oxford: Blackwell.
- Gottsched, Johann Christoph. 1748. *Grundlegung einer Deutschen Sprachkunst: Nach den Mustern der besten Schriftsteller des vorigen und jetzigen Jahrhunderts abgefasst*. Leipzig: Bernhard Christoph Breitkopf.
- Havinga, Anna D. 2018. *Invisibilising Austrian German: On the effect of linguistic prescriptions and educational reforms on writing practices in 18th-century Austria*. Berlin & Boston: De Gruyter.
- Havinga, Anna D. 2019. The role of eighteenth-century newspapers in the disappearance of Upper German variants in Austria. In *Journal of Historical Sociolinguistics* 5(1). 1–31.
- Hernández-Campoy, Juan Manuel & Tamara García-Vidal. 2018. Style-shifting and accommodative competence in Late Middle English written correspondence: Putting audience design to the test of time. In *Folia Linguistica Historica* 39(2). 383–420.
- Hobel, Bettina & Ralf Vollman. 2015. Phonological case study of the use of (Styrian) dialect and standard language in German as a second language. In: *Grazer Linguistische Studien* 84. 5–20.
- Hymes, Dell. 1974. Ways of speaking. In Richard Bauman & Joel Sherzer (eds.), *Explorations in the ethnography of speaking*, 433–451. Cambridge: Cambridge University Press.
- Irvine, Judith T. 1990. Registering affect: Heteroglossia in the linguistic expression of emotion. In Caterine Lutz & Lila Abu-Lughod (eds.), *Language and the politics of emotion*, 126–161. Cambridge: Cambridge University Press.
- Jaklin, Ingeborg. 2003. *Das österreichische Schulbuch im 18. Jahrhundert: Aus dem Wiener Verlag Trattner und dem Schulbuchverlag*. Wien: Praesens.
- Joseph, Brian D. 2012. Historical linguistics and sociolinguistics: Strange bedfellows or natural friends? In Nils Langer, Steffan Davies & Wim Vandenbussche (eds.), *Language and history, linguistics and historiography: Interdisciplinary approaches*, 67–88. Bern: Peter Lang.

- Koch, Peter & Wulf Oesterreicher. 1985. Sprache der Nähe – Sprache der Distanz: Mündlichkeit und Schriftlichkeit im Spannungsfeld von Sprachtheorie und Sprachgeschichte. In *Romanistisches Jahrbuch* 36. 15–43.
- Koch, Peter & Wulf Oesterreicher. 1994. Schriftlichkeit und Sprache. In Hartmut Günther & Otto Ludwig (eds.), *Schrift und Schriftlichkeit: Ein interdisziplinäres Handbuch internationaler Forschung*, 587–604. Berlin: De Gruyter.
- Kocka, Jürgen. 1990. *Arbeitsverhältnisse und Arbeiterexistenzen: Grundlagen der Klassenbildung im 19. Jahrhundert*. Bonn: J.H.W. Dietz.
- König, Werner, Stephan Elspaß & Robert Möller. 2015. *dtv-Atlas Deutsche Sprache*. 18th edn. München: Deutscher Taschenbuch Verlag.
- Labov, William. 1972. The isolation of contextual styles. In William Labov, *Sociolinguistic patterns*, 70–109. Philadelphia: University of Pennsylvania Press.
- Langer, Nils & Anna D. Havinga. 2015. Invisible languages in historical sociolinguistics: A conceptual outline, with examples from the German-Danish borderlands. In Anna D. Havinga & Nils Langer (eds.), *Invisible languages in the nineteenth century*, 1–34. Oxford: Peter Lang.
- Müller, Norbert. 1988. Schule und Lehrer in Straden von 1628 bis 1869. In Gottfried Allmer & Norbert Müller (eds.), *800 Jahre Pfarre Straden 1188–1988*, 224–251. Straden-Graz: Pfarramt Straden.
- Nübling, Damaris, Antje Dammel, Janet Duke & Renata Szczepaniak. 2013. *Historische Sprachwissenschaft des Deutschen: Eine Einführung in die Prinzipien des Sprachwandels*. 4th edn. Tübingen: Narr.
- Polenz, Peter von. 2013. *Deutsche Sprachgeschichte vom Spätmittelalter bis zur Gegenwart. Band 2: 17. und 18. Jahrhundert*. 2nd edn. Revised by Claudine Moulin with assistance from Dominic Harion. Berlin: De Gruyter.
- Rössler, Paul. 1997. *Die deutschen Grammatiken der zweiten Hälfte des 18. Jahrhunderts in Österreich. Ein Beitrag zur Reform der deutschen Schriftsprache*. Frankfurt am Main: Peter Lang.
- Rössler, Paul. 2005. *Schreibvariation – Sprachregion – Konfession. Graphematik und Morphologie in österreichischen und bayerischen Drucken vom 16. bis ins 18. Jahrhundert*. Frankfurt am Main: Peter Lang.
- Rössler, Paul. forthcoming. Typographische Variation in der Interpunktion des 18. Jahrhunderts am Beispiel des Virgel-Komma-Wechsels. In Anna D. Havinga & Bettina Lindner-Bornemann (eds.), *Deutscher Sprachgebrauch im 18. Jahrhundert: Sprachmentalität, Sprachwirklichkeit, Sprachreichtum*. Heidelberg: Winter.
- Schiegg, Markus. 2018. Factors of intra-speaker variation in nineteenth-century lower-class writing. In *Neuphilologische Mitteilungen* 119. 101–120.
- Schilling, Natalie. 2013. Investigating stylistic variation. In J. K. Chambers & Natalie Schilling (eds.), *The handbook of language variation and change*. 2nd edn., 327–349. Hoboken, NJ: Wiley-Blackwell.
- Teutsches Namen oder Lehrbüchl. Der Lieben Jugend zum Besten auf solche Art eingerichtet / daß hierdurch im ersten Theil sie zum richtigen Grund des Buchstabiren / oder Sylbentheilen / recht aussprechen / und lesen: Im andertē aber zur Rechtschreib- und Wörterforschung angewiesen werden kan.* c. 1750. Wien: Maria Eva Schilgin.
- Traugott, Elizabeth Closs & Suzanne Romaine. 1985. Some questions for the definition of “style” in sociohistorical linguistics. In *Folia Linguistica Historica* 6(1). 7–39.
- Wurzbach, Constantin von. 1857. Brandis, vormals Brandeiß, auch Brandeis. In Constantin v. Wurzbach, *Biographisches Lexikon des Kaiserthums Oesterreich*. Zweiter Theil, 114. Wien: Verlag der typografisch-literarisch-artistischen Anstalt.

Marie-Luis Merten

Intra-individual Variation from a Historical Perspective: Towards a Usage-based Model of Constructional Change and Variation

Abstract: The contribution explores intra-individual (IAV) as well as intra-textual variation in historical legal writing from the perspective of diachronic Construction Grammar. It develops a usage-based model of constructional change and phenomena of variation inevitably associated with it. On the one hand, the understanding of IAV (in historical collaborative writing) will be clarified on a theoretical level, especially in contrast to intra-textual variation. Historical legal texts are often the product of different writers. Variation can thus be found both within passages originating from one scribe and within a text as a collaboratively created written document. The relationship between IAV and stylistic variation is also dealt with in this context; not every case of IAV is social-symbolically motivated. On the other hand, the contribution presents – based on these theoretical discussions – results of a qualitative corpus analysis of complex constructions, whose different realisations (= constructs) clearly represent examples of IAV. The basis for this is a corpus consisting of Middle Low German (MLG) codifications of urban and land law from the late Middle Ages and Early Modern Period. It is shown that IAV can be traced back to the realisation of constructions of different ages (within individual writing) belonging to one constructionalisation path. Related constructions of different ages coexist – even cognitively. This applies, for example, to a large number of subordinative form-meaning pairs, which the chapter examines. From this, considerations of constructions as gradient categories are developed. The synchronous gradience of complex constructions is due to diachronic graduality, i.e. to successive changes in this area. In addition, the contribution investigates the stylistic dimension of lexical alternation on the basis of the underlying legal documents. In this context, slot fillings of selected complex constructions (especially in the most recent land law) will be examined. Here the social-symbolic significance of IAV comes into focus. Overall, the contribution argues in favour of integrating IAV more strongly into the Construction Grammar field of view.

Keywords: Diachronic Construction Grammar, constructionalisation, constructional change, historical syntax, Middle Low German, historical legal writing

<https://doi.org/10.1515/9783110743036-011>

1 Introduction

In the late Middle Ages and Early Modern Period, the writing of vernacular legal texts was subject to numerous processes of change. The present chapter takes a closer look at grammatical changes becoming apparent in Middle Low German (MLG) legal texts. During the period under study (13th to 16th century), several written-language constructions – i.e. literate form-meaning pairs – emerge, spread and develop in the vernacular MLG (Tophinke 2012; Merten 2018, 2020), which replaced Latin as the dominant written language in the Hanseatic region. Legal texts are particularly revealing material here, as they are gradually becoming written texts *par excellence*. The focus of this chapter is primarily on complex (conditional) constructions, whose change contributes to the genesis of subordinate clauses as macro-constructions. This constructional change is a usage-based phenomenon (Bybee 2010), whereby within one textual testimony, constructions of different ages are realised by the writers. In other words: change results from usage in which structures of different stages of development coexist. In this context, the underlying language material reveals intra-textual, sometimes also intra-individual variation (IAV), which is essentially related to the simultaneity of the non-simultaneous (Raible 1992: 263; Langacker 2010: 94). Individual innovations, diffusing structures of younger age as well as older established techniques that may have lost a certain degree of expressiveness – all belonging to one constructionalisation path – are not only found at one point in time within the language practice of a community (e.g., of legal writers), but even in the language use of individual speakers or, in our case, individual writers (manifested in the form of written texts).

The qualitative results presented in this chapter stem from an exploratory study, which – based on a large diachronic corpus – investigates the language elaboration of MLG as a far-reaching change in grammar. Its aim is a reconstruction of historical MLG grammar capturing the linguistic reality – which is also shaped by IAV – as far as possible. The grammar, and especially the syntax, of MLG has been only insufficiently investigated so far. The few reference grammars available up to now date from the second half of the 19th century (Lübben [1882] 1970) and the early 20th century (Lasch 1914). More recent (diachronic) studies are still a desideratum. Moreover, it has not yet been empirically clarified to what extent findings on High German language levels, such as Early New High German, can be transferred to MLG. The present chapter approaches this research desideratum from a Construction Grammar – hereafter abbreviated as CxG – point of view. Phenomena of intra-individual as well as intra-textual variation within larger grammatical change scenarios are taken into account in detail. It should be emphasised that IAV – both theoretically and empirically – has so far

received little attention in (diachronic) CxG. This contribution therefore follows two objectives. (i) The first objective is to approach IAV theoretically within the framework of a usage-based model of grammatical change. It is important to review and relate the considerations presented so far (gradience, gradualness, variation) and to show how they can be conclusively applied to the present study. (ii) This is where the second objective comes into play, since the use of corpus-material opens up interesting empirical insights into the phenomenon of IAV and intra-textual variation with regard to complex form-function pairs and their change. These insights will be discussed in detail and thus, ideally, motivate follow-up research.

In order to pursue these objectives, this introduction is followed by a section providing a contextualisation and conceptual-empirical foundation (Section 2). The development of the legal writing practice under scrutiny is outlined, and the underlying understanding of IAV – also in distinction to intra-textual variation – is clarified. In addition, the corpus and method of investigation will be discussed in more detail. Section 3 examines the CxG foundations of this contribution. Grammatical change is discussed as a phenomenon based on language use (Section 3.1) and (intra-individual/intra-textual) variation is examined from such a CxG perspective (Section 3.2). Both synchronous variation (as a phenomenon on the verbal surface) and categorial gradience (as a phenomenon at the level of human cognition) are emphasised as phenomena emerging from the diachronic gradualness of language change. Section 4 deals with IAV and intra-textual variation with regard to individual complex constructions in the corpus. In the context of arising complex sentence constructions, structural variations within individual texts, which as a whole allow a diachronic longitudinal view of constructional change, are investigated (Section 4.1). In addition, the chapter discusses the stylistic dimension of lexical alternation (slot filling in these complex constructions) (Section 4.2). For this purpose, subjunctives of a younger age as well as subjunctive phrases, with which causal and conditional relations in the texts are construed, are examined. A short discussion and summary conclude the contribution in section 5. This section primarily addresses consequences that the presented findings on IAV have for grammatical modelling, especially regarding CxG.

2 Contextualisation, terminological clarification and corpus design

A contextualisation with focus on the changing scriptural practice under discussion (Section 2.1) is followed by a discussion of terminology (Section 2.2). Selected

research literature and historical examples are used to clarify what is meant by IAV and what IAV is to be distinguished from. Section 2.3 presents the corpus, which is made up of texts from the writing practice examined.

2.1 Contextualisation: Legal writing and an evolving literate grammar

Both writing in general and writing in the vernacular gained in relevance in the late Middle Ages and Early Modern Period (von Polenz 2000: 114). In numerous domains – from trading and administration to law and medicine – there was an increasing tendency to fix content in written form, in the Hanseatic region using MLG. This historical language precedes Low German, which is nowadays used almost exclusively orally. However, such an (almost) exclusively oral use can also be observed in early MLG before far-reaching textualisation processes (Schwyter 1998) began in the (late) Middle Ages. During this scripturalisation, MLG not only becomes more relevant for writing in urban settings and affairs, but it finally develops into a supra-regionally used written language (Stellmacher 2017: 27). This functional differentiation is accompanied by structural elaborations (Koch and Oesterreicher 2007: 364; Maas 2009: 164): MLG develops written language structures, constituting a literate grammar. In this form it meets the requirements and possibilities of written texts across many domains and the needs of the reading recipient. In written discourse, structures emerge that support an empirically detached reception (Ong 1982: 37). The written text must be understandable by itself, it must contain all relevant information for an unequivocal interpretation and make it available in a manner appropriate to the addressee. The verbal code becomes the only source of information for the reading recipient (Maas 2010: 81).

The domain of law is particularly revealing for this development towards a written language and its effects on language structure – for several reasons. Law undergoes an institutionalisation in the late Middle Ages and Early Modern Period. It becomes an institution where texts are edited and processed (Busse 2000: 664; Felder 2013: 87). Accordingly, a repertoire of habituated communicative units for writing texts emerges. These are relatively fixed language structures that (must) meet the growing demands made on law. Legal texts need to be as explicit and unambiguous as possible (Hiltunen 2012), but they must also construe an increasing number of varying legal situations in a schematic and often compacted way (Topfink 2009: 175–176, 2012). Subsequently, numerous literate form-meaning pairs coping with these requirements evolve via processes of language elaboration (Maas 2008: 333). This type of language change is closely

linked to writing and contexts surrounding the production of written documents. From a grammatical point of view, a large number of language techniques arise in processes of language elaboration: types of subordinate clauses arise, with which complex sentences are formed and thus different relations (mainly of a conditional nature in the legal domain, but also causality, temporality, etc.) between finite contents are construed (Schwyter 1998: 190). In order to integrate content into sentences and thus condense texts, various prepositional techniques and techniques to expand the noun phrase develop. A grammaticalisation of punctuation can also be observed (cf. Stein 2003: 71); it no longer serves as an aid for reading the texts aloud, but it is instead tailored to the unity of literate sentences.

In addition, a change in practice can be observed in the legal domain. This change affects the reception of legal texts, but it is also reflected in their conception (Erben 2000). The older legal texts are read aloud at regular intervals to the urban public. The younger texts are set up as reading texts, which are read in a consultative and selective manner (Mihm 1999; Tophinke 2009). This change in the way legal texts are interpreted also sets the course for the literary expansion of language, e.g. for the emergence of techniques of syntactic stretching and semantic loading (Merten 2018). On the other hand, it results in the need to optimise the texts produced for silent reading, which undergoes a professionalisation. Constructions emerge which support diagonal and punctual reading.

Up to this point the following can be emphasised: an increasing differentiation of the repertoire of literate constructions can be observed during the period under scrutiny. Not only do written language form-function couplings emerge, which are consequently tailored to the writing of texts, but also numerous constructions of legal writing arise – i.e. structures that are typical/specific for the production of legal documents (see Merten 2018). The legal writers frequently instantiate these linguistic usage patterns, modifying them minimally where necessary, and in this form contributing to the (socio-)genesis of the corresponding grammatical structures. On a superordinate level, changes occur that extend across several linguistic techniques. This includes the genesis of the complex sentence, which corresponds as a structural phenomenon to the development of legal documents from read-aloud texts to texts for silent reading (Tophinke 2009; Szczepaniak 2015: 108). In this context, it is primarily techniques for construing conditional relationships that occur (and evolve) in the texts (see Lühr 2007: 213): The legislature attaches a certain consequence (e.g. punishment as apodosis) to a conditional content (e.g. the presence of a certain criminal offence as protasis). Various techniques that highlight different aspects of this conditional relationship emerge (see Section 4).

2.2 Clarification: IAV in historical legal writing

The following aspect needs to be highlighted in investigating phenomena of IAV: in the writing process of (extensive) legal texts, different hands are often involved. There are several writers for one text, who are at times responsible for cases of variation within a single text – as intra-textual variation. The following excerpt from the urban law of Werl (a city located today in the federal state of North Rhine-Westphalia), which was written at the beginning of the 14th century, serves as an example.

- (1) Examples from the urban law of Werl (1324 AD)
 - a. **Weret also dat** *eyn wif ouer ene nothtoch clagegede . . .*
Would it be that a woman complained about an abomination . . .
 - b. **Weret also dat** *eyn man sin kint be rede . . .*
Would it be that a man pays his child . . .
 - c. **Weret al zo dat** *eyn vse borg(er)e de borghescap v+op sigede . . .*
Would it be that one of our citizens cancels the guarantee . . .

The phrase *weret also dat*, which can be translated with *would it be that* or *if it were that*, varies in its spelling. This form of graphemic variation can be interesting with regard to the degree of grammaticalisation of this unit (process of chunking), along with other indicators. Here, however, it is not one individual writer who varies, but this relatively short urban law is written by different hands. Interestingly the three examples originate from three different persons. This is quite often the case in the data. Much of what at first glance may appear to be IAV – since it comes from one text – subsequently turns out to be ‘merely’ an intra-textual phenomenon. This is rather obvious in this historical writing practice: different professional writers contribute to the production of a complete text that may be created over a longer period of time. They continue to write the text or add new legal norms to it. Sometimes we come across additions and corrections that were made years (at times, but rarely decades) after the initial publication. Legal texts are thus produced collaboratively. Also, passages from older legal texts may be copied in places, which can lead to the passing on of outdated coding techniques. Nevertheless, there are also cases of variation which concern the intra-individual level (see Section 4).

Terminologically, the following differentiation is made accordingly: we encounter IAV, which in historical (socio)linguistics is a promising research desideratum (Schiegg and Freund 2019: 53), when verifiably one writer varies (within a style, here: style of legal writing; for the distinction between IAV and intra-speaker variation, see Bülow and Pfenninger 2021). In this context, lexicogrammatical IAV – in accordance with the CxG framework – is the main

focus of this contribution. In individual writing, variation in the area of (related) complex constructions is viewed as (minimally) “alternative ways of saying the same thing” (Labov 2004: 7). These constructions under consideration belong to one constructionalisation path. They are thus of different ages, but highly related to each other, since they stand in a relationship of source and target construction. IAV can in turn be considered “against the background of communal patterns” (Bergs 2005: 40). Texts dating from the same period of time, for example, provide an insight into the communal patterns of a given time (see for the term *communal construction* Section 3.2).

Whether or not the variation under consideration is a case of IAV is determined by a palaeographic comparison of different sections in existing facsimiles or it is indicated by corresponding references to the responsibility of different scribes in editions. If this analysis of the manuscripts is ambiguous, or if it becomes clear that there is variation within a text, but that this variation is due to different writers, then intra-textual variation is pointed to. Intra-textual variation is a much more frequent phenomenon in the corpus than IAV and is equally interesting: variation within a text underlines that the understanding of texts as synchronous forms of verbal expression can be relativised. On the one hand, urban laws are written over a longer period of time anyway – as explained above –, and on the other hand, diachronic reflexes are always found in synchronous language use (Bybee 2010: 105).

Both the variation of one writer and the variation within a text originating from different writers can be caused by the ‘simultaneous’ instantiation of different old usage patterns. Section 3 will deal with this aspect from a theoretical point of view, Section 4.1 from an empirical point of view. Such variation does not necessarily have to be social-symbolically loaded, i.e. distinguishing the writer as a competent scribe who can make use of a certain register – e.g., a chancery language register. In the writing practice examined, however, there is also social-symbolically motivated variation, which I describe as stylistic variation (see Section 4.2). This stylistically influenced variation, too, has of course grown historically, but what is special is that it seems to be associated with a certain degree of prestige (Schwitalla 2002; Sairio and Palander-Collin 2014). I consider style with Sandig (1986: 25) to be the socially significant way of carrying out a linguistic action. Here, not only significant forms and patterns come into view (Linke 2009, 2011), i.e. individual linguistic resources as stylistic devices (e.g., complex secondary subordinations), but the variation itself is discussed as a social-symbolically motivated expression of competence. Variation as the intentional use of a wide range of functionally (almost) identical forms is used in the service of identity construction as a professional scribe (Coupland 2001). This can involve lexical alternation, as in the present case, i.e. lexical fillings of constructional

slots alternate. But also conceivable is e.g. constructional alternance, i.e. the use of different grammatical patterns to construe a fact/relation of facts.

2.3 Corpus and research method

In order to investigate the cases of variation presented, a corpus of mainly urban and to a lesser extent land law codifications from the 13th to the 16th century serves as database. This corpus, which is to a high degree homogeneous¹ in terms of text genre, represents the main subcorpus of the larger InterGramm database – a Digital Humanities project investigating the language development of MLG with the help of computer-supported methods (Merten and Tophinke 2019). A total of 22 law codifications from the period 1227 AD to 1567 AD constitutes the main corpus, which thus comprises about 497,600 tokens (word forms). The entire corpus is annotated semi-automatically at part of speech level, and all machine suggestions are double-checked by human annotators. Some of the texts are annotated manually at the level of complex form-function pairings (constructions) (9 texts with a total of 77,400 tokens). For this purpose, a tag set for complex constructions in MLG has been developed based on the underlying corpus. Since construction-evoking elements (often of lexical origin) were identified for all constructions, the corresponding constructions (in change) can also be searched for in the remaining database. Given well thought-out search queries, both recall and degree of precision of the output structures are relatively high/good for a) a historical corpus with high graphemic variation and b) complex constructions (in change) as the object of investigation. As we are dealing here with a diachronic corpus, changes over time can be traced, especially in the context of evolving syntactic structures with likewise changing lexical material. Nevertheless, in many texts, synchronous variation – in the broadest sense of synchrony, as explained above – also occurs. It is important to emphasise the exploratory nature of the underlying research. Qualitative findings are presented, which however are based on an intensive manual and partly tool-supported data review.

3 Theoretical framework

Before we turn to the data, the following section deals with the theoretical framework of this contribution. One of the main concerns is to discuss (diachronic) CxG

¹ Changes over the 300-year period under study occur of course.

as a usage-based model of language and language change, where reference is repeatedly made to the role of individual usage in language change (Section 3.1). A closer look at the relationship between gradient categories, the gradualness of change, (intra-individual) variation and CxG is also to be taken (Section 3.2), opening up an innovative framework for the subsequent analysis in Section 4.

3.1 A usage-based model of language (change): Diachronic CxG

Constructions as the key object of CxG(s) are, in this conception, the central entities of human language. As bilateral units they are pairs of form and meaning/function (e.g., Croft 2001: 18). These two sides are held together associatively by means of a symbolic link that is formed as a result of entrenchment for individuals and as a result of conventionalisation for speech communities (Schmid 2014; Schmid and Mantlik 2015). Among other criteria, constructions can be hierarchised with regard to their degree of schematicity: Macro-constructions are much more schematic than meso-constructions, and these in turn exhibit a higher degree of schematicity than micro-constructions (Trousedale 2008: 52). This contribution in particular focuses on (the genesis of) subordinate clause constructions as complex form-meaning pairs (cf. Bybee 2015: 161). In functional terms the relation of two finite (sentence) units is decisive, and in the case of subjunctional constructions – a type of subordinate clause constructions – there is fixed lexical material: the corresponding subjunction is cognitively entrenched. The related entities are only of a schematic nature (see Section 4).

While constructions are cognitive *gestalts*, we encounter instantiations of these constructions – at times only fragmentarily realised – in conversations and texts: so-called constructs (Traugott and Trousedale 2013: 16). In exploratory studies – as these are the basis of the present contribution – potential constructs for equally potential constructions can be worked out based on intensive analysis of the material. Corpora allow far-reaching insights into the construction of an individual or a community (Goldberg 2003: 220). The construction of a speaker/writer or a language community is not a stable entity (Bybee and Hopper 2001: 8). Rather, language knowledge is “considered to emerge from and be continuously refreshed by the interplay of cognitive processes taking place in individual minds, on the one hand, and socio-pragmatic processes taking place in societies, on the other” (Schmid 2014: 242). This dynamic modelling corresponds to a usage-based approach. Entrenchment and conventionalisation are “on-going processes rather than resultant states” (Schmid 2014: 243).

This is where the diachronic approach comes into play: “usage engenders change” (Langacker 2010: 94). Moreover, the following applies: “since entrench-

ment and conventionality are matters of degree, there is never a sharp distinction between synchrony and diachrony” (Langacker 2010: 94). Constructional variants of different ages exist side by side.² They are produced within a text by one writer and can be described as a phenomenon of IAV based on the simultaneity of the non-simultaneous (Bybee 2010: 105). The speakers/writers are familiar with both or more structural possibilities at one point in time, but are not (or less) aware of their diverging ages – because change only becomes perceptible with a certain time lag.

Traugott and Trousdale (2013) proposed an elaborate model for the diachronic evolution of constructions (on the relation and compatibility of grammaticalisation and CxG, see Coussé, Andersson and Olofsson 2018). The innovative use of linguistic units of single individuals marks the starting point for change (Traugott and Trousdale 2013: 21), but the (recurrent) adoption of innovations by other speakers and writers is decisive for its diffusion, establishment and progress (Croft 2000: 166–195; Traugott and Trousdale 2013: 46). Already used form-function pairs (can) have an impact on innovative techniques, whereby analogy relations play a decisive role. Established (schematic) constructions define the dynamic boundaries of what is grammatically possible; innovations as deviations often follow a regularity that is entrenched elsewhere in the grammar network. From a diachronic CxG point of view, we can distinguish between constructionalisation and constructional change. On the one hand, new constructions arise over a more or less long period of time (Traugott and Trousdale 2013: 22).³ On the other hand, there are already existing constructions that evolve over time. Changes occur in form or function but can also affect the frequency or distribution of constructions (Hilpert 2011: 69). Constructional change and constructionalisation often merge into one another; i.e. they cannot always be clearly separated from one another (Trousdale 2010: 27, 2013: 32).

Since these changes evident in use are often only very small, and since younger structures do not immediately replace older ones, but continue to exist in parallel for a while as new(er) coding techniques, this gradualness of change inevitably leads to gradience in the (supposedly synchronous) language system (Bybee 2011: 70). We encounter grammatical continua (Croft 2001: 322), which in

2 Albeit with an often shifting frequency of occurrence: younger (and possibly not yet conventionalised) form-meaning pairs initially occur sporadically, some decades later either more frequently or not at all (because not adopted by others), while the frequency of older techniques might decrease (Bybee 2012: 333).

3 Note on emerging constructions: “Often it is difficult to find the actual starting point, but it is possible to find constructions in early stages of development and to follow that development. Corpus-based studies are particularly interesting in this regard [. . .]” (Bybee 2015: 172).

turn are also in a state of change, and we cannot clearly distinguish constructions from each other (cf. Heine and Narrog 2010: 408–411).

3.2 Gradient categories, (intra-individual) variation and CxG

Variation, gradience and the gradualness of change are directly related. This relationship is to be examined in greater detail, with attention being paid to variation manifested in individual language use. The fact that variation cannot be explained exclusively in terms of change – although at least the foundation is thereby laid – becomes an issue above all when it comes to a stylistic and thus social-symbolic motivation of variation (see Section 2.2). Here, variation is maintained over a long period of time by individual speakers (or writers); it identifies them as competent speakers/writers who are aware of different ways of construal (cf. Section 4.2).

What has been pointed out so far and is also evident in the underlying corpus of law codifications (cf. Section 4) is that, often, pairs of form and meaning (of different ages) compete with each other (Bybee and Beckner 2010: 847); in addition to only minimal differences in form, they are connected by a very similar functional profile. Nevertheless, minimal differences can be seen (cf. Hoffmann and Trousdale 2011: 11). When a new construction is created, at times, “it will only very gradually take over the functions of existing constructions” (Bybee 2015: 172). This in turn can result in the “very interesting synchronic situation in which there are two or more constructions that seem to do almost the same grammatical work” (Bybee 2015: 172). Hopper (1991) describes this phenomenon as layering, where formally different constructions can also form the layers of a functional category.

The change in grammar is characterised by its gradual nature. The steps leading to new grammatical structures are small. Although the change of language in a macro perspective is gradual and hence continuous, on the micro level discrete structural changes and tiny-step transmission in individual language use can be observed (cf. Traugott and Trousdale 2013: 74–75). The diachronic graduality manifests itself synchronously in the form of categorical gradience (cf. Aarts 2004). The categorical gradience represents a “by-product of constructional change” (Trousdale 2013: 32). It results from micro-changes in linguistic properties of the constructions under investigation (Currie 2013: 47). Bybee and Beckner emphasise that linguistic categories are consequently not sharply separable:

The gradualness of linguistic change means that at any given moment in a synchronic grammar, there will not only be variation, but also gradience in the sense that some units will not fall squarely into the linguist’s categories of word, clitic, or affix. (Bybee and Beckner 2010: 838)

Grammatical categories are dynamic, gradient and show a certain degree of variability – since categorical representatives of different ages persist in parallel for a long time. The boundaries of these categories “are difficult to distinguish, usually because change occurs over time in a gradual way, moving an element along a continuum from one category to another” (Bybee and Beckner 2010: 837). In a similar vein, Bybee (2010: 120) argues for looking at synchronous variation and gradual diachronic change “as principal evidence that grammars themselves incorporate the gradience and variability seen in the data”. The following example shows that the categories *prepositional* and *subjunctive construction* clearly overlap in MLG of the 14th century (cf. Lübben [1882] 1970: 120) – as they do nowadays in German, English and so on. The multiword string *na deme dat* ‘after that’ can be considered as a (temporal) preposition *na* (‘after’, cf. Schiller and Lübben 1877: 145f.) followed by the demonstrative pronoun *deme* (‘this’, cf. Schiller and Lübben 1875: 490) and the primary subjunction *dat* (‘that’, Schiller and Lübben 1875: 488). In this case, the preposition governs the complex noun phrase with the demonstrative pronoun *deme* as its head, which is semantically enriched by the *dat*-clause as attribute. As a consequence of frequency-based chunking, the entire unit can also be considered as a functionally loaded chunk, which can be classified as a secondary subjunction *na deme dat*. The structure is ambiguous, which points to the gradience of the ‘participating’ categories.

(2) Example from the codex of Goslar (1350 AD)

- a. *We sik eruegu+odes vnderwint . oder an sprikt . [[na]_{prep} [deme]_{pron} / [dat]_{subj}]_{subj} it im vor delet is vor gherichte . Dat is en vredebrake* (edited by Lehmborg 2013: 203)

Whoever seizes hereditary property or makes a claim to it **after that that** it has been deprived of it in court. This is a breach of the peace.

While these remarks refer to the synchrony-diachrony interface as an explanatory factor for gradient category structures, variation – competing coding techniques – is also the result thereof and the basis for change (Andersen 2001: 228): without variation in synchronous language use, the transformation of language would not be possible; without competing expressive possibilities, there is no choice that can prevail and in turn become competition for younger coding techniques. Without the diachronic perspective, “synchronic innovation and variability would not be understandable” (Ramat, Mauri, and Molinelli 2013: 5). Ramat, Mauri, and Molinelli (2013: 5) accordingly state the following: “In other words, variation implies a dynamic conception of language, which is exactly the property that we identify as the locus of the interface between synchrony and diachrony.”

The relationship between the phenomenon of variation and CxG is an interesting one, because “the analysis of linguistic variation has only recently been put on the research agenda of Construction Grammarians, who are thus relative late-comers to a phenomenon that has already been studied intensely for several decades within the tradition of quantitative sociolinguistics” (Hilpert 2014: 185). Of course, it is also a concern of CxG studies to reveal gradience in the data, to identify variants of different constructions and related constructions competing with each other and thus to underscore the importance of inter- and intra-individual variation and its understanding in the context of language use. However, there is still a lack of broadly based studies. Note, however, that there are some studies (e.g. Gries 1999; Hoffmann and Trousdale 2011; Schmid and Mantlik 2015; Petré 2016) – especially in the context of grammaticalisation studies (e.g. Bybee and Beckner 2010: 845–850).

It is only in recent years that a few CxG analyses of IAV questions have been presented – e.g. concerning the impact of individual language use on grammatical change (Bergs 2005). One of these studies examines the relationship of “the author and the text in radically usage-based diachronic construction grammar, or why historical linguists have started analysing text again” (Noël 2019: 56). The basis for argumentation is that constructs as locus of innovation are obviously embedded in texts: these constructs constitute the sometimes centuries-old text that the historical linguist can analyse. Since change starts from innovation, individual language use and IAV, evident in the texts of individual authors, also become relevant.

Innovative instances of use are products of individual minds, but owing to modern (historical) linguistics’ traditional fixation with conventionalized systems there was until recently little interest in idiolectal grammars. More ‘radically’ usage-based research has now begun to surface which centrally relates innovative grammar to individual usage and which takes into account the textual context of usage events. (Noël 2019: 56)

Fischer (2010: 182) states that “the position of the language-user should be a central issue in any theory concerned with language change”. For research into grammaticalisation, she points out that up to now, the focus has been too much on the changing language itself, instead of paying more attention to the speakers/writers and addressees using this language and thereby contributing to change. In such a perspective, individual innovations are to be considered, and, accordingly, the focus is to be directed more towards individual linguistic knowledge – instead of aiming at a conventionalised system. This implies, in terms of methodology, that a distinction must be made between different authors in corpora, or that use must be made of already existing historical idiolect corpora in studies on language change (e.g. De Smet 2016). This allows for a more cog-

nitively realistic modelling of language change. IAV is then to be considered against the background of the relationship between individual innovations and patterns conventionalised in the language knowledge of the individual. Innovations of speakers/writers are analogically motivated by their own constructicon (Noël 2019).

In general, the social-interactive dimension in CxG must be given more emphasis in connection with IAV. The individual use of language is always co-determined by the contextual framework, into which co-interactants/addressees as well as larger socio-cultural contexts are incorporated. To take socio-pragmatic contexts more into account is a concern that not only CxG, but also (superordinate) Cognitive Linguistics has been following in recent years (Croft 2009). This reorientation in no way implies a rejection of the individual (and his/her cognition), but merely a shift towards the use of language in context, which must include the individual use of language in socio-cultural networks. Then, for example, stylistic factors as determinants of (syntactic) variation (cf. Currie 2013) become important. Demonstrating that one can draw on a large linguistic repertoire can be social-symbolically motivated: Competent writers in the Early Modern Period, for example, do justice to their prestigious profession (Schwitalla 2002) by displaying their ability to alternate within their legal writing style – syntactically and, of course, especially lexically they demonstrate this competence in their texts (cf. Section 4.2).

4 Insights based on empirical evidence

The following section provides empirically based insights into a selected area of IAV that can be found in the historical writing of legal texts. The results were obtained by a manual analysis of the corpus. An automated search for constructions is not yet possible for all texts, since the annotation work on this level (form-meaning pairs) has not yet been completed. In the following, the focus is primarily on complex sentences, i.e. subordinate clause constructions which, with regard to their genesis and above all the dynamics of this genesis, have hardly been researched for Middle Low German. The first section focuses on the genesis of complex conditional structures – from aggregative to integrative construal (cf. Raible 1992). Structural variations ranging from older to more recent coding techniques can be identified for various texts. Since intra-textual variation is not necessarily equivalent to IAV, it must be emphasised that the number of references for (in all probability) IAV is limited. As pointed out above, this historical writing practice is characterised by the fact that a written artefact can

issue from different hands. Several writers are involved in the production. In the second section, the subjunctive slot fillings of two complex constructions (construing conditional and causal relations) come into view. Particularly in the most recent text, which is part of the corpus (written in the year 1567 AD in Dithmarschen), a high degree of lexical variation is apparent in this area of complex constructions. This motivates considerations regarding the stylistic dimension of IAV.

4.1 Genesis of complex sentences: Structural variation within individual texts

In the late Middle Ages and Early Modern Period, numerous literate form-meaning pairs in MLG arise in the course of language elaboration processes (cf. Section 2.1). One area of language elaboration in which significant innovations can be seen relates to emerging subordinate clause constructions. For the underlying legal texts, developments can be observed above all in the relationship between a conditional landmark (subordinate clause, e.g. crime) and a conditioned trajectory (main clause, e.g. punishment). The repertoire of conditional techniques, which are also subject to further structural developments, becomes more differentiated. Different types of subordination emerge (adverbial clauses, complement clauses, attributive clauses, etc.), and new subordinations arise, which can be used for construing more abstract relations (causality, concessionality and so forth). Across the individual subordinate clause types as micro-constructions, whose change in MLG is examined in more detail by Tophinke (2012) and Merten (2018), the genesis of the complex clause is evident. This superordinate change on a macro level can be reconstructed on the basis of the underlying material and has also been documented for other languages (for a cline of clause-combining constructions, see Hopper and Traugott 2003: 178). However, its dynamics and spatio-temporal propagation have hardly been researched for MLG: from (initial) aggregation via correlation (already observable at an early stage and still today (in Low and High German) not unusual) to integration (increasingly used in writing) (Raible 1992). In the following, this path will be exemplified on the basis of constructs in which the conditional subjunction *wanne* ('if', Schiller and Lübben 1880: 592) occurs (examples 3) – this subjunctive technique for construing conditional relations being frequently used in legal texts.

- (3) a. Aggregation/parataxis: *wanne*-clause A (including a specifying clause introduced by the relative pronoun *de*) + verb-initial conditional clause B + verb-second clause C
 [*Wanne nv ser borghere sterft de eyne echte husvrowen let*]_A · [*wel de vrowe then in clostere · spettal eder conuent*]_B · [*de scal . . .*]_C (Goslar 1350 AD)
 If one of our citizens dies, who leaves behind a wife. If the woman wants then to move to a cloister, hospital or convent, she should . . .
- b. Correlation: *wanne*-clause A + verb-second clause B (including the correlative adverb *so*)
 [*Wanne me(n) dat ok lost*]_A · [*so scal me(n) de kost ghelden . de it heft vor dan*]_B (Goslar 1350 AD)
 However, if one redeems it, **then** one should pay for the food which it has consumed
- c. Integration/hypotaxis: *wanne*-clause A positioned (as adverbial) in the prefield of the verb-second matrix clause B
 [[*Wannehr einer syne Sake dorch Tu+egen wahr maken und bewysen will*]_A / *schal he de Tu+egen im Rechten nahmku+endig maken*]_B (Dithmarschen 1567 AD)
 If one wants to prove his case through witnesses, he must make the witnesses legally known

Here, a change can be observed, beginning with the paratactic organisation of legal contents, continuing with the correlation by using the resumptive adverb *so* ('then') and moving on towards an integrative coding of those contents. Although the *wanne*-structure in example (3a) already resembles – in a formal view – a subordinate clause (with an initial element and the final verb), it is neither correlative resumed nor integrated within a matrix structure. Rather, the structure corresponds to a discourse pattern in the sense that the (complex) entity at the beginning of the passage produces a loosely joined or paratactic structure whose function is to draw attention to the (thereby constructed) topic of the discourse/ following text passage (cf. Bybee 2015: 162). From a cognitive-linguistic point of view, the function word *wanne* acts as a space builder (Fauconnier and Turner 2002: 102). The non-integrated structure is used to design a mental space (in working memory) that is successively enriched by the subsequent content. The structure can be essentially motivated by the reading context of older legal texts: flat hierarchies support their auditive reception (Szczepaniak 2015: 108). The resumption in example (3b) is already a further step towards complex sentences, as it is finally realised in example (3c). Interestingly, the aggregative realisation (3a) as well as the correlative coding (3b) both appear in the same text, where they are manifestations of intra-textual variation (see Section 2.2). The integrative

example (3c) comes from a land law that is about 200 years younger. In this last stage, the subordinate clause is topologically integrated into the matrix structure: the finite verb of the matrix structure *wel* ('(to) want') is placed in the left sentence bracket, and the *wanne*-clause (as adverbial) is positioned in the prefield. A similar constructionalisation path can be found for conditional pronominal structures – that is, for conditional form-meaning pairs using, for example, forms of the pronoun *we* ('who', Schiller and Lübben 1880: 618f.) (examples 4):

- (4) a. Aggregation/parataxis: *wey*-clause A (including a specifying *dat*-clause) + verb-second clause B
UOrtmer . [wey deme anderen eyn pant settet . | dat jar vnde dach stayn sal]_A . [dat sal hey doyn | vor deme groten richtere . efte . . .]_B (Soest 1367 AD)
 Furthermore. Who sets a deposit for the other, which is to last year and day, he should do so in front of the great judge or . . .
- b. Correlation: *we*-clause A + verb-second clause B (including the correlative *de*)
[So we inde stat to ruden queme des vrijdaghes als vespere ghe luth were]_A [de solde . . .]_B (Rüthen 1350 AD)
 Whoever comes into the city to Rüthen on Fridays when Vespers is rung, **he** shall . . .
- c. Integration/hypotaxis: *wye*-clause A positioned (as subject) in the prefield of the verb-second matrix clause B
[[Soe wye dair tegen(n) dede]_A sall gebroecht heb(e)n l R(ynsche) g(ulden)]_B (Duisburg 1518 AD)
 Whoever offends against it shall pay a fine of 50 Rhenish guilders

The main difference lies in the fact that these examples from MLG legal texts illustrate the change of topics becoming subjects (Bybee 2015: 162) – instead of topics becoming adverbials (examples 3). This change scenario also contributes to the genesis of subordinate clauses as macro-construction(s), but here we are dealing with emerging complement clauses. While an adverbial clause, as in example (3c), profiles the conditional entity as processual content, the profile of (most) complement clauses, as in example (4c), is a nominal one: reference is made to an actant whose action, for example, violates something previously cited. As Langacker (2008) pointed out, we are dealing with different construal techniques. Also in the case of examples (4) we do not observe an abrupt transition to the newer micro-construction starting at a certain point in time, but rather longer phases of coexistence. For example, the (younger) correlative stage (4b) is taken from an older text than the (oldest) aggregative construal technique (4a). A realistic picture of grammatical change must take this variability into account (cf. Section 3.2).

What to emphasise: in both cases (examples 3 and 4) we face – in all probability, since (historical) cognitive reality can only be approximated – three micro-constructions that can be assigned to a superordinate constructionalisation path – the genesis of the complex sentence. In the underlying corpus it is clearly visible that constructions as form-meaning pairs of different ages coexist in one single text. The corpus data exemplify not only constructional change(s), but also the emergence of new constructions as instantiated in (3c) and (4c). There are both far-reaching developments at the level of form (especially topological integration) and a change in the functional profile: from a construction tailored for reading aloud to a writing-induced construction that construes a closer connection between two propositions. It is interesting in this context that adverbial clauses are probably the last to take the integrative step (for reasons, see Langacker 2014: 65). Figure 1 provides an overview of the developments discussed so far.

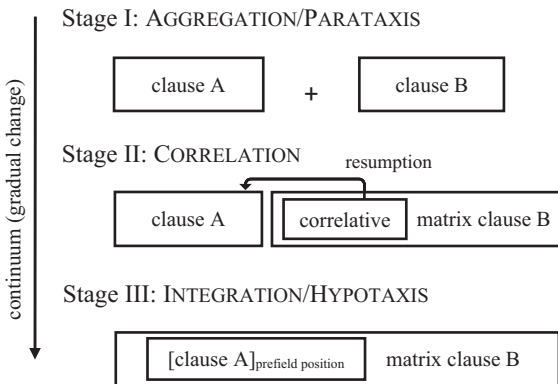


Figure 1: Aggregation-integration continuum (diachronic perspective).

Let us now take a closer look at phenomena of IAV, which occur in the described genesis of the complex sentence. The cases to be examined underscore the fact that change is always characterised by the coexistence of older and younger variants, which can be observed simultaneously and over a longer period of time. Thus, diachrony manifests itself at one point in time, that is, in synchrony. A realistic picture of language change must obviously assume IAV (here: as the simultaneity of the non-simultaneous) to be the norm. Likewise, categories have to be modelled as gradient. This gradient category structure results from the gradual nature of change. In the Soester Schrae – the urban law of Soest written in the year 1367 AD – verb-initial constructions, among others, are used to establish conditional relations (following examples 5, all stemming from one hand).

The preceding V1-clause construes the conditional legal situation. In this text from the 14th century, aggregative and correlative coding are used side by side. The correlative adverb *so* ('then', examples 5c and 5d) establishes a (syntactically) closer relationship between the legal facts, and twice the resumptive pronominal adverb *dar mede* ('thereby', cf. Schiller and Lübben 1875: 486f.) also occurs as correlative within this text (example 5e). In contrast to *so*, however, further relational semantics is already transported here, due to the (prepositional) component {mede} ('with', Schiller and Lübben 1877: 50f.). Furthermore, it seems historically not unusual – at least for legal writing as the literacy practice under investigation – to use the demonstrative pronoun in the genitive *des* ('that', Schiller and Lübben 1875: 509f.) in this slot (example 5f), which serves as a source for the formally identical adverb *des* with the meaning 'therefore' (Schiller and Lübben 1875: 510). At least in semantic-pragmatic terms, this pronoun is (loosely) resumptive. From a contemporary language perspective, no syntactically matching connection is coded in example (5f), but our conventionalised patterns should not be projected onto the historical material. Correspondingly, IAV is also apparent in the choice of the correlative; here, however, contextual factors (e.g., depending on certain verb constructions or idiomatic expressions) should be investigated more closely with regard to this (lexical) variation. In the urban law of Soest, for instance, we see that *dar mede* appears twice only in (a probably fixed) connection with (*dar mede*) *heuet hey sin lyf vorboret* ('thereby he forfeited his life').

(5) Examples from the urban law of Soest (1367 AD)

- a. Aggregation of clause A and B: *VOrtmer . [ku+omet eyn Rouere . efte eyn iu+owelich vnrecht man binnen de stat]_A . [dey sal . . .]_B*
Further. does a robber or any other unrighteous man enter the town. he shall . . .
- b. Aggregation of clause A and B: *[weyrt hey des ouer ghan . also eyn recht / is]_A . [dey heuet sinen hals vor boret]_B*
is he convicted of that as it is right. he lost his neck
- c. Correlation (correlative in clause B): *[vnde kan man des nicht doyn]_A . [**so** mach hey sich vnsculdighen . . .]_B*
and if one cannot do that. **then** he can apologise . . .
- d. Correlation (correlative in clause B): *[kan hey auer des nicht weten wey dat ghenomen heuet]_A . [**so** mu+ot hey wol soken binnen sinen weren]_B*
but if he cannot know that who took it. **then** he must search within his dwelling
- e. Correlation (correlative in clause B): *[weirt hey des / vor wu+onnen also eyn recht is]_A . [**dar mede** heuet / hey sin lyf vor boret]_B*
will he be convicted of it as is a right. **thereby** he forfeited his life.

- f. Correlation (correlative in clause B): [*wolde / hey des vorsaken*]_A | [*des mach man ene ouer/ghan mit . . .*]_B
 did he want to deny it. he can be proved guilty **of that** with . . .

Another conditional technique that can be referred to regarding the development of complex sentences is the *de iene de*-construction. Its fixed lexical entity is composed of the definite article *de* ('the'), the demonstrative pronoun *iene* ('those') and the relative pronoun *de* ('who'). A distinctive feature lies in the fact that strictly speaking no clause is realised by *de iene de X*, but only a complex noun phrase including a specifying (subordinate) *de*-clause as a conditional entity. This technique thus basically has a nominal construal that profiles the (schematically defined) actor. Nevertheless, it fits into the development from aggregation to integration, because in a few (older) texts such a complex *de iene de*-noun phrase is produced in initial position (as part of a conditional relation) without being resumed or integrated. In the urban law of Lübeck from the period 1294/95 AD – a relatively old urban law, whose first major part was written by one scribe (Korlén 1951: 14) – there is evidence of both a correlative and an integrative coding. However, correlation is much more frequent. In total, we identify 11 constructs that can be traced back to this construal technique. Six realisations contain a correlative, three realisations are integrative, and two realisations are only fragmentary, being embedded in paratactic structures. This relationship of high and low frequency of occurrence is also reflected in the following examples (6). If we look at the category structure of this construction (on constructions as (prototype) categories, see Taylor 2003: 222), this implies the following: during this time (and for the writers of law in this region), the correlative coding seems to be entrenched as the typical or core variant of this construction, the integrative variant being (at that time still) more peripheral.

(6) Examples from the urban law of Lübeck (1294/95 AD)

- a. Correlation: *wil de man dat vorderen des de wortins sin is. [de iene de vp der wort is.]_A [de weddet deme richtere ver schillinghe]_B
 does the man want to claim that the wort interest⁴ is his. he who is on the wort. **he** pays the judge four shillings*
- b. Correlation: [*de iene de dese schult oder dese sake uorderet*]_A [*de ne is nicht plichtich ieneghe tughe anders uor to bringhende*]_B
 he who demands this guilt or this thing, **he** is not obliged to present that witness differently
- c. Correlation: [*de iene de ene vp gehalten heuet vnde eme sin gut afgenomen heuet*]_A [*de is der schult verwunnen de vorsate hetet. vnde schal . . .*]_B
 he who stopped him and took away his goods, **he** is convicted of the guilt, who has intention, and shall . . .

- d. Integration/hypotaxis: *so welic unse borghere eneme dheue sin gut afiaghet. dat des dheues was* [[*Des ienen de dat gut heft afgheiaghet.*]_A *is dat dridde del.*]_B
 whichever of our citizens takes from a thief his property, which was the thief's. He who took the property is (owner of) the third part

In the previous examples, two successive stages were documented in one text written by one legal scribe. Interestingly, we also find the simultaneous realisation of the older aggregative and the youngest integrative stage next to each other – in Dithmarschen's land law of 1567 AD, where conditional pronoun constructions such as *What someone inherits, he must make known* vary in their realisation. One sees here structural variation within one article – thus obvious: IAV – but in different paragraphs. In paragraph 6 there is an aggregative coding, the *wat*-component A and the verb-second clause B are placed together without explicit linking. In paragraph 9, however, the *wat*-component occurs in the prefield of a matrix clause, the left sentence bracket of this matrix structure exhibits the finite verb *heft* ('has'). The *wat*-clause takes over the syntactic function of an object in the matrix structure. Overall, conditional relationships are construed in these examples.

(7) Examples from the land law of Dithmarschen (1567 AD)

- a. Aggregation/parataxis: §.6. [*Wat Mann und Fruw in stahnder Eheschop miteinander verwerven / und eer Guht verbeteren*]_A / [*de scho+elen beide Deeel / und ere Erven nillich tho gelyke genehten.*]_B
 What a man and woman acquire in standing marriage and improve their property. they shall have both parts and their heirs shall have an equal share in the profits thereof recently.
- b. Integration/hypotaxis: §.9. [[*Wat averst der Fruwen in stahnder Ehe angestorven effte gegeven were / dat bewieslyk in des Mannes Gu+edere gekahmen*]_A / *hefft Se mit des Mannes Gelo+evigern datsu+elve tho fodern / tho den Gu+edern gelyken thoritt.*]_B
 But what was inherited or given to the woman in her standing marriage, which was demonstrably received in the man's goods, she has the same claim with the man's creditors to the goods of equal division

A paratactic coding of such and similar conditional structures in the running text of this land law occurs rarely. Thus, with regard to the older construction the following is

4 In many places in Germany a specific annual interest rate was formerly called *worttins*; it was paid to the Fiscus by the (owner of) houses and goods, or by their land.

confirmed: “Often the more recently created construction is gaining in productivity at the expense of the older construction, which will undergo a reduction in both type and token frequency.” (Bybee 2015: 175) Correlative and integrative patterns predominate. However, the land law of Dithmarschen exhibits so-called stand-alone conditionals as headline constructs: various conditional structures (verb-initial clauses, conditional clauses with introducing subordinations, pronouns and so on) serve as headlines – space builders specific to written texts. They provide a condensed overview of the most important content of the following sections, thus opening up a corresponding thematic mental space. That the transition between coordination and subordination – as has become clear – is fluid, but that the various techniques of subordination also merge into one another, is underlined by Figure 2 (simplified and modified following Croft 2001: 322; see also Cristofaro 2003: 22–25). We often encounter realisations in the data located in such an area of overlap (which can also be historically justified).

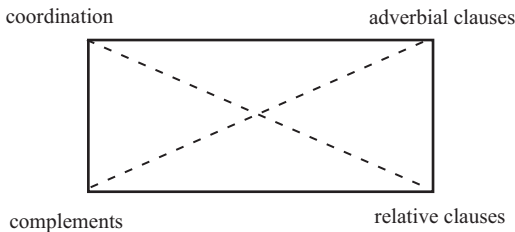


Figure 2: Coordination-subordination continuum (cf. Croft 2001: 322).

4.2 Varying subordinations: Lexical alternation stylistically motivated?

In this second section, varying subordinations and chunks – multiword strings functioning as complex (secondary) subordinations – within a single text come into view. The focus is particularly on the most recent legal text underlying the study: the land law of Dithmarschen written in 1567 AD. Since this text occurs in printed form and there is no corresponding secondary literature that reliably clarifies different authorships, intra-textual variation – instead of IAV – is assumed here, even if directly adjacent paragraphs are sometimes taken into account. It is therefore not unlikely that these adjacent paragraphs originally came from the pen of one writer. The examples do open up an interesting perspective that can be summed up as ‘varying as competent writing’, and that profiles the (legal) writer as a social actor practicing a prestigious profession. IAV – and in this context only the reference to individual writers/speakers makes sense – may well be stylistically motivated.

Such a lexical alternation is evident in the land law of Dithmarschen (1567 AD) in the following context: in this legal text, deontic-illocutionary constructions are used at the beginning of several articles (examples 8). Justifications are given at the illocutionary level, more precisely: reasons for the speech/writing acts of enacting and writing down legal norms that are performed by means of this written fixation. The function-word slot of this complex deontic-illocutionary meso-construction – thus a construction at the middle hierarchy level (see section 3.1) – is filled with the subjunctives *nademe* as well as with *dewile*, both in the sense of ‘since’. At least according to the present state of knowledge, there are no (major) differences in meaning. Nor does this alternation concern a relationship between older and younger construal techniques; the (source) micro-constructions with the lexical specifications *nademe* and *dewile* (both causal subjunctives, which emerged from a temporal coding technique (see Merten 2018: 326–342) are comparably old. Rather, the writers illustrate their writing skills – here in the meaning of text formulation – by alternating lexically. They illustrate their knowledge of the lexical diversity in this field of complex literate constructions. Against the background of the prestigious writing of legal texts in the Early Modern Period, this lexical diversity becomes stylistically interpretable.

(8) Examples from the land law of Dithmarschen (1567 AD)

a. *Van Meen=Eeden.*

NAdeme *yt ein groht / und erschrecklyk Laster / un(de) Su+ende ys den Nahme(n) des Allma+echtigen Gades tho miszbruke(n).*

§.1. *So scho+elen vo+erdann dejennigen / de des averwysset werden / dat se . . .* (Article 119)

Of perjury.

Since it is a great and terrible vice and sin to misuse the name of Almighty God.

§1. So henceforth, those who are found guilty of this shall . . .

b. *Van Straffe der Upro+erischen und Moth=willigen.*

DEwile *tho Erholdinge aller Regiment no+edig ys / dat de Unterdanen ehrer Overicheit schuldigen Gehorsam erto+egen / und de Ungehorsam affgeholden und gestraffet werden / wordorch ein yder des Rechtens und fredlyken Wesens sick tho erfro+ewen hebbe.*

§.1. *Setten und verordnen Wy hiermede . . .* (Article 3)

Of punishment of the seditious and wanton.

Since for the preservation of all regiments it is necessary for the subjects to show obedience to their authorities and for the disobedient to be deterred and punished, whereby everyone of a right and peaceful nature can enjoy.

§.1. We hereby sit and decree . . .

As a side note: at the same time, these examples from the corpus also document the intra-textual variation with regard to a correlative (8a) and an integrative coding (8b) of this deontic-illocutionary relation (cf. Section 4.1).

Some urban laws are characterised by a high degree of (text-traditional) continuity in terms of complex secondary function words expressing ‘if’. They recurrently refer to the same multiword strings – e.g. *were et dat* or later also: *were dat sake dat* (‘was it a legal matter that’). This is clearly shown in examples (1) from the urban law of Werl. In the younger and (more) elaborated land law of Dithmarschen (1567 AD), a broad repertoire of recurrent phrasal units – also chunks in the sense of Bybee (2012) – is used, which correspond semantically-relationally to an ‘if’ in the broadest sense. Furthermore, they highlight the beginning of a new paragraph (cf. on theme-indicating constructions Merten 2020). These chunks are verb-initial structures like *begeve yt sick dat* or *dro+ege yt sick tho dat* (both: ‘does it happen that’):

(9) Examples: complex (subjunctive) chunks sharing the semantic potential of ‘if’

- a. **BEgeve yt sick / dat dem Vagede und Ra+eden gar geringe Saken vorquemen / de nicht so veel werth werden / dat men so veel Unkosting / also de vorgeschreven Procesz und Rechtganck vanna+eden hebben wolde / darumme dohn scholde / Willen Wy hiermede . . .** (Dithmarschen 1567 AD; Article 17)

If it were to happen that the bailiff and council were to be faced with minor legal matters which were not worth so much, that so many expenses should be incurred in order to ensure that the prescribed process and course of law was followed. We hereby order . . .

- b. **Were yt Sake / dat de Unmu+endige verstorve / eer he tho synen mu+endigen Jahren quehme / edder dorch dat Recht Mu+endig erkant worde / so scho+elen de Vormundere . . .** (Dithmarschen 1567 AD; Article 24)

If it were a matter of law that the minor should die before he came of age or was recognised by law as being of age, then the guardians should . . .

- c. **Dro+ege yt sick averst tho / dat eener verstorve / de nene Kinder / Kindes. Kinder / edder de vordann van densu+elven gebahren werden / na sick lehte / Ock neen Vader / Moder / Grohtevader und Grohtemoder / und so vordann nene Persohenen in upstiegender Linienen by Leven weren: Averst he hedde . . .** (Dithmarschen 1567 AD; Article 30)

But if it were to happen that someone died who did not leave behind children, children’s children, or children born of children born of children of children. Also, no father, mother, grandfather and grandmother, and so from now on no persons in the ascending line would be alive. But he would have . . .

A relatively large amount of word material is used to fill the (function word) slot of a construction, which could theoretically also be filled by a *wannehr/wanne* or *effte* (both: ‘if’, cf. Schiller and Lübben 1877: 216, 1880: 592). But: these highly grammatical words *wanne* and *effte* – their high degree of polyfunctionality also speaks for their very grammatical status (on *effte*-forms see Fischer 2005: 151 and Merten 2018: 359–372) – lack a stylistically expressive added value or the potential for social-stylistic marking. Unlike the complex chunks, they are not attributed any social value (Spitzmüller 2013: 141). That this is the case for the examples (9) can be concluded from the use of such a complex form, although more efficient – because shorter – linguistic entities would be available. On the other hand, cases of the fusion of the *effte/wannehr*-construction and these complex (subjunctive) chunks also indicate that these forms are stylistically (and functionally) enriched (examples 10): the more complex the writing is, the more competent the writer appears. Complex (chancellery) writing was considered stylistically exemplary in the late Middle Ages and Early Modern Period (Brooks 2006: 16).

(10) Examples: fusion of *effte/wannehr*-construction and complex (subjunctive) chunks

a. **WAnnehr sick ock thodroge / dat in einem Dru+eddendeel / aldar einer beklaget wo+erde / dat Recht versecht edder vertagen worde / Setten und verordnen Wy / dat . . .** (Dithmarschen 1567 AD; Article 18)

If it is also true that in a third part, as one was complained of, the right was denied or adjourned, we set and order that . . .

b. **Efft yt sick averst thodro+ege / dat se sick malkeinader sodahner Bekendnisse und Verehringe nicht verglyken konden / schall de Befehlighebber . . .** (Dithmarschen 1567 AD; Article 24)

But if it is true that they could not compare such confessions with each other, the commander should . . .

Even the instantiation of one of these constructions – either using *wannehr* or *effte* or a complex chunk with verb-initial position – would have already led to the establishment of a conditional or conditionally coloured relationship. However, these constructs also prove that the conditional constructions (with *wannehr* or *effte* as subjunctives) are not functionally equivalent to the stylistically enriched conditional constructions realised in (10). Otherwise, these two form-function pairs (in all probability) could not/would not be combined.

From a usage-based perspective, (lexical) alternation becomes relevant in the examples presented as a social-symbolically motivated variation (demonstrating the competence to alternate). The use of such complex forms can be seen as a socially relevant expression: competent writers make use of a complex legal style

whose ‘competing’ construal possibilities they are aware of. Thus, it is not different registers that are used here as an intra-speaker phenomenon in the sense of Labov (1972), but, rather, (intra-individual) variation within a writing practice (= one register) can be observed as a mark of competence. Through variation in use, knowledge of the many possibilities of the formal register (of law writing) is demonstrated. In this way, writers perform a professionally defined identity associated with this particular use of language (Coupland 2001; see also for a speaker design model regarding intra-individual variation Bülow and Pfenninger 2021: Section 3.1).

5 Conclusion and implications

Of central interest is what the presented considerations and observations on both intra-individual and intra-textual variation (from a CxG perspective) imply for the modelling of grammar (and its change). Even though the writing practice under investigation is a form of literacy that is largely characterised by the collaborative production of texts, it is apparent in many parts of the corpus that – in individual writing – different old variants of several constructions do not immediately displace each other, but coexist. Similar conclusions – the (cognitive) coexistence of differently aged form-meaning pairs belonging to one constructionalisation path – can be drawn for the corresponding individual knowledge. This coexistence expresses itself in observable variation, for the texts examined, for example, with regard to various subordinate conditional constructions (Section 4.1) or also causal construal techniques (Section 4.2). The layering of construction variants – within a writing practice, i.e. within a register – proves to be the rule and should be considered in this form when modelling grammar and grammatical change. That constructions must be modelled as gradient categories, and that this in turn is essentially related to the gradualness of constructional change, can also be emphasised as an important implication. We are dealing with more and less typical realisations of a construction (in change) at one point in time, which again speaks for gradience within the category structure. The linguistic system, which is (cognitively) available to speakers and writers as well as listeners and readers, is characterised by a high degree of flexibility (Bergs 2005: 30).

The investigation has also underlined the following: intra-individual and intra-textual variation can not only be explained within the framework of diachronic changes, but may also be stylistically motivated. Of course, stylistically added value – whether in terms of lexemes or grammatical constructions – is always formed and consolidated over time. However, it is not micro-constructions

belonging to one constructionalisation path, but formally divergent form-function pairs connected by a comparable meaning potential that have been used within individual texts. Their parallel use within a text leads to a form of variation that seems to be stylistically motivated. Consequently, the variation itself has been discussed as a social-symbolically motivated expression of competence. It turns out that in the context of grammar studies such reasons (e.g. identity construction) for variation should be given greater consideration. This addresses an important desideratum in Cognitive Linguistics (Croft 2009) and especially in CxG (Ziem 2015): the social foundation of grammaticality and constructional variation.

References

Primary sources (cited corpus data)

- 1294 urban law of Lübeck: own transcription of the archival records, Copenhagen, Royal Library, cod. Thott. 1003, 4^o.
- 1324 urban law of Werl: <http://www.lwl.org/331-download/Texte/html/20009B.html> (accessed 12 May 2020).
- 1350 urban law of Goslar: Lehmborg, Maik. 2013. *Der Goslarer Ratskodex – Das Stadtrecht um 1350: Edition, Übersetzung und begleitende Beiträge*. Bielefeld: Verlag für Regionalgeschichte.
- 1350 urban law of Rüthen: Köhler, Wolfgang. 1996. *Die Staturrechte der Stadt Rüthen*, 6–46. Bonn: Dissertation.
- 1376 urban law of Soest: Transcript of the historical manuscript from the city archive Soest, A 2737c, 3a–22b.
- 1518 urban law of Duisburg: Mihm, Arend & Michael Elmentaler. 1990. *Das Duisburger Stadtrecht 1518*. Duisburg: Walter Braun.
- 1567 land law of Dithmarschen: *Dithmarsches Land-Recht, Sampt etlichen Constitutionen* (printing from 1667). Glückstadt: Melchior Kochen.

Secondary literature

- Aarts, Bas. 2004. Modelling linguistic gradience. *Studies in Language* 28(1). 1–49.
- Andersen, Henning. 2001. Actualization and the (uni)directionality. In Henning Andersen (ed.), *Actualization: Linguistic change in progress*, 225–248. Amsterdam & Philadelphia: John Benjamins.
- Bergs, Alexander. 2005. The role of the individual in language change from the point of view of social network analysis. *Logos and Language: Journal of General Linguistics and Language Theory* 6(1). 30–54.

- Brooks, Thomas. 2006. *Untersuchungen zur Syntax in oberdeutschen Drucken des 16–18. Jahrhunderts*. Frankfurt a. M.: Peter Lang.
- Bülow, Lars & Simone E. Pfenninger. 2021. Introduction: Reconciling approaches to intra-individual variation in psycholinguistics and variationist sociolinguistics. In: *Linguistics Vanguard* 7(s2), 1–10.
- Busse, Dietrich. 2000. Textsorten des Bereichs Rechtswesen und Justiz. In Gerd Antos, Klaus Brinker, Wolfgang Heinemann & Sven F. Sager (eds.), *Text- und Gesprächslinguistik: Ein internationales Handbuch zeitgenössischer Forschung*, 2nd volume, 658–675. Berlin & New York: de Gruyter.
- Bybee, Joan L. & Paul Hopper. 2001. *Frequency and the Emergence of Linguistic Structure*. Amsterdam & Philadelphia: John Benjamins.
- Bybee, Joan L. 2010. *Language, Usage and Cognition*. Cambridge: Cambridge University Press.
- Bybee, Joan L. & Clay Beckner. 2010. Usage-based Theory. In Bernd Heine & Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 827–856. Oxford: Oxford University Press
- Bybee, Joan L. 2011. Usage-based theory and grammaticalization. In Heiko Narrog & Bernd Heine (eds.), *The Oxford Handbook of Grammaticalization*, 69–78. Oxford & New York: Oxford University Press.
- Bybee, Joan L. 2012. From usage to grammar: The mind's response to repetition. In Adele Goldberg (ed.), *Cognitive linguistics: Critical concepts in linguistics*, 332–362. London & New York: Routledge.
- Bybee, Joan L. 2015. *Language change*. Cambridge: Cambridge University Press.
- Coupland, Nikolas. 2001. Language, situation, and the relational self: Theorizing dialect-style in sociolinguistics. In Penelope Eckert & John R. Rickford (eds.), *Style and Sociolinguistic Variation*, 185–210. Cambridge: Cambridge University Press.
- Coussé, Evie, Peter Andersson & Joel Olofsson. 2018. Grammaticalization meets Construction grammar. Opportunities, challenges and potential incompatibilities. In Evie Coussé, Peter Andersson & Joel Olofsson (eds.), *Grammaticalization meets Construction Grammar*, 3–19. Amsterdam & Philadelphia: John Benjamins.
- Cristofaro, Sonia. 2003. *Subordination*. Oxford: Oxford University Press.
- Croft, William A. 2000. *Explaining language change: An evolutionary approach*. London: Longman.
- Croft, William A. 2001. *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Croft, William A. 2009. Toward a social cognitive linguistics. In Vyvyan Evans & Stéphanie Pourcel (eds.), *New directions in cognitive linguistics*, 395–420. Amsterdam: John Benjamins.
- Currie, Oliver. 2013. Gradual change and continual variation. The history of a verb-initial construction in Welsh. In Anna Giacalone Ramat, Caterina Mauri & Piera Molinelli (eds.), *Synchrony and Diachrony: A dynamic interface*, 43–78. Amsterdam & Philadelphia: John Benjamins.
- De Smet, Hendrik. 2016. How gradual change progresses: The interaction between convention and innovation. *Language Variation and Change* 28. 83–102.
- Erben, Johannes. 2000. Syntax des Frühneuhochdeutschen. In Werner Besch & Anne Betten (eds.), *Sprachgeschichte. Ein Handbuch zur Geschichte der deutschen Sprache und ihrer Erforschung*, 2nd volume, 1584–1593. Berlin & New York: de Gruyter.

- Fauconnier, Gilles & Mark Turner. 2002. *The way we think. Conceptual blending and the mind's hidden complexities*. New York: Basic Books.
- Felder, Ekkehard. 2013. Juristische Fachsprache oder wie Bedeutung im Recht entsteht. In Andreas Deutsch (ed.), *Historische Rechtssprache des Deutschen*, 81–99. Heidelberg: Winter.
- Fischer, Christian. 2005. Variation und Korrelation im Mittelniederdeutschen. Möglichkeiten und Grenzen der Variablenlinguistik. In Elisabeth Berner, Manuela Böhm & Anja Voeste (eds.), *Ein gross vnnd narhafft haffen. Festschrift für Joachim Gessinger*, 149–162. Potsdam: Universitätsverlag Potsdam.
- Fischer, Olga. 2010. An analogical approach to grammaticalization. In Katerina Stathi, Elke Gehweiler & Ekkehard König (eds.), *Grammaticalization: Current views and issues*, 181–218. Amsterdam: John Benjamins.
- Goldberg, Adele. 2003. Constructions: A new theoretical approach to language. *Trends in Cognitive Sciences* 5(5). 219–224.
- Gries, Stefan Th. 1999. Particle movement: a cognitive and functional approach. *Cognitive Linguistics* 10. 105–145.
- Heine, Bernd & Heiko Narrog. 2010. Grammaticalization and Linguistic Analysis. In Bernd Heine & Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 401–423. New York: Oxford University Press.
- Hilpert, Martin. 2011. Dynamic visualizations of language change: Motion charts on the basis of bivariate and multivariate data from diachronic corpora. *International Journal of Corpus Linguistics* 16(4). 435–461.
- Hilpert, Martin. 2014. *Construction grammar and its application to English*. Edinburgh: Edinburgh University Press.
- Hiltunen, Risto. 2012. The grammar and structure of legal texts. In Lawrence M. Solan & Peter M. Tiersma (eds.), *The Oxford Handbook of Language and Law*, 39–51. Oxford & New York: Oxford University Press.
- Hoffmann, Thomas & Graeme Trousdale. 2011. Variation, change and constructions in English. *Cognitive Linguistics* 22. 1–23.
- Hopper, Paul J. 1991. On some principles of grammaticization. In Elizabeth C. Traugott & Bernd Heine (eds.), *Approaches to Grammaticalization*, 1st volume, 17–36. Amsterdam: John Benjamins.
- Hopper, Paul J. & Elizabeth Closs Traugott. 2003. *Grammaticalization*. 2nd edition. Cambridge: Cambridge University Press.
- Koch, Peter & Wulf Oesterreicher. 2007. Schriftlichkeit und kommunikative Distanz. *Zeitschrift für Germanistische Linguistik* 35(3). 346–375.
- Korlén, Gustav. 1951. *Norddeutsche Stadtrechte II. Das mittelniederdeutsche Stadtrecht von Lübeck nach seinen ältesten Formen*. Lund & Kopenhagen: C. W. K. Gleerup.
- Labov, William. 1972. The reflection of social progress in linguistic structures. In William Labov, *Sociolinguistics Patterns*, 240–251. Philadelphia: University of Pennsylvania Press.
- Labov, William. 2004. Quantitative Analysis of Linguistic Variation. In Ulrich Ammon, Norbert Dittmar, Klaus J. Mattheier & Peter Trudgill (eds.), *Sociolinguistics. Soziolinguistik*, 1st volume, 6–21. Berlin & New York: de Gruyter.
- Langacker, Ronald W. 2008. *Cognitive Grammar. A basic introduction*. New York: Oxford University Press.
- Langacker, Ronald W. 2010. Cognitive Grammar. In Bernd Heine & Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 87–110. Oxford: Oxford University Press.

- Langacker, Ronald W. 2014. Subordination in a dynamic account of grammar. In Laura Visapää, Jyrki Kalliokoski & Helena Sorva (eds.), *Contexts of Subordination: Cognitive, typological and discourse perspectives*, 17–72. Amsterdam: John Benjamins.
- Lasch, Agathe. 1914. *Mittelniederdeutsche Grammatik*. Halle: Niemeyer.
- Linke, Angelika. 2009. Stil und Kultur. In Ulla Fix, Andreas Gardt & Joachim Knappe (eds.), *Rhetorik und Stilistik. Ein internationales Handbuch historischer und systematischer Forschung*, 1131–1144. Berlin & New York: de Gruyter.
- Linke, Angelika. 2011. Signifikante Muster. Perspektiven einer kulturanalytischen Linguistik. In Elisabeth W. Nivre, Brigitte Kaute & Bo Andersson (eds.), *Begegnungen. Das 8. nordisch-baltische Germanistentreffen in Sigtuna vom 11. bis zum 13.6.2009*, 23–44. Stockholm: Stockholm University.
- Lübben, August. 1970 [1882]. *Mittelniederdeutsche Grammatik*. Osnabrück: Otto Zeller.
- Lühr, Rosemarie. 2007. Bedingungssätze in altfriesischen Rechtstexten. *Advances in Old Frisian Philology/Amsterdamer Beiträge zur älteren Germanistik* 64. 213–238.
- Maas, Utz. 2008. *Sprache und Sprachen in der Migrationsgesellschaft. Die schriftkulturelle Dimension*. Osnabrück: V&R unipress.
- Maas, Utz. 2009. Orality versus literacy as a dimension of complexity. In Geoffrey Sampson, David Gil & Peter Trudgill (eds.), *Language complexity as an evolving variable*, 164–177. New York & Oxford: Oxford University Press.
- Maas, Utz. 2010. Einleitung. / Literat und orat. Grundbegriffe der Analyse geschriebener und gesprochener Sprache. *Grazer linguistische Studien* 73. 5–150.
- Merten, Marie-Luis. 2018. *Literater Sprachausbau kognitiv-funktional. Funktionswort-Konstruktionen in der historischen Rechtsschriftlichkeit*. Berlin & Boston: de Gruyter.
- Merten, Marie-Luis & Doris Tophinke. 2019. Interaktive Analyse historischen Grammatikwandels. Konstruktionsgrammatik trifft auf *machine learning*. *Jahrbuch für Germanistische Sprachgeschichte* 10. 303–323.
- Merten, Marie-Luis. 2020. Insights into a changing communal constructicon: Legal writing in the Late Middle Ages and Early Modern Period. In Elisabeth Piirainen, Natalia Filatkina, Sören Stumpf & Christian Pfeiffer (eds.), *Formulaic language and new data: theoretical and methodological implications*, 225–248. Berlin & Boston: de Gruyter.
- Mihm, Arend. 1999. Funktionen der Schriftlichkeit in der städtischen Gesetzgebung des Spätmittelalters. *Zeitschrift für Germanistische Linguistik* 27. 13–37.
- Noël, Dirk. 2019. The author and the text in radically usage-based diachronic constructions grammar, or why historical linguists have started analysing text again. *Function of Language* 26(1). 56–63.
- Ong, Walter. 1982. *Orality and Literacy*. London: Methuen.
- Petré, Peter. 2016. Unidirectionality as a cycle of convention and innovation: Micro-changes in the grammaticalization of [BE going to INF]. *Belgian Journal of Linguistics* 30. 115–146.
- Polenz, Peter von. 2000. *Deutsche Sprachgeschichte vom Spätmittelalter bis zur Gegenwart. Band I: 14. bis 16. Jahrhundert*. Berlin: de Gruyter.
- Raible, Wolfgang. 1992. *Junktion. Eine Dimension der Sprache und ihre Realisierungsform zwischen Aggregation und Integration*. Heidelberg: Winter.
- Ramat, Anna Giacalone, Caterina Mauri & Piera Molinelli. 2013. Synchrony and diachrony: Introduction to a dynamic interface. In Anna Giacalone Ramat, Caterina Mauri & Piera Molinelli (eds.), *Synchrony and Diachrony: A dynamic interface*, 1–23. Amsterdam & Philadelphia: John Benjamins.

- Sairio, Anni & Minna Palander-Collin. 2014. The Reconstruction of Prestige Patterns in Language History. In Juan M. Hernández-Campoy & J. Camilo Conde-Silvestre (eds.), *The Handbook of Historical Sociolinguistics*, 626–638. Hoboken, New Jersey: Wiley Blackwell.
- Sandig, Barbara. 1986. *Stilistik der deutschen Sprache*. Berlin & New York: de Gruyter.
- Schiegg, Markus & Sabrina Freund. 2019. Intraindividuelle Variation auf lexikalisch-semantischer Ebene bei unroutinierten Schreibern des 19. Jahrhunderts. *Linguistik online* 99. 51–76.
- Schiller, Karl & August Lübben. 1875ff. *Mittelniederdeutsches Wörterbuch. Band 1–6*. Bremen: Kühnmann.
- Schmid, Hans-Jörg. 2014. Lexico-grammatical patterns, pragmatic associations and discourse frequency. In Thomas Herbst, Hans-Jörg Schmid & Susen Faulhaber (eds.), *Constructions Collocations Patterns*, 239–293. Berlin & Boston: de Gruyter.
- Schmid, Hans-Jörg & Annette Mantlik. 2015. Entrenchment in historical corpora? Reconstructing dead authors' minds from their usage profiles. *Angelia* 133(4). 583–623.
- Schwitalla, Johannes. 2002. Komplexe Kanzleisyntax als sozialer Stil. Aufstieg und Fall eines sprachlichen Imponierhabitus. In Inken Keim & Wilfried Schütte (eds.), *Soziale Welten und kommunikative Stile. Festschrift für Werner Kallmeyer zum 60. Geburtstag*, 379–398. Tübingen: Niemeyer.
- Schwytter, Jürg R. 1998. Syntax and Style in the Anglo-Saxon Law-Codes. In Christina Ehler & Ursula Schaefer (eds.), *Verschriftung und Verschriftlichung. Aspekte des Medienwechsels in verschiedenen Kulturen und Epochen*, 189–231. Tübingen: Narr.
- Spitzmüller, Jürgen. 2013. *Graphische Variation als soziale Praxis. Eine soziolinguistische Theorie skripturaler ›Sichtbarkeit‹*. Berlin & Boston: de Gruyter.
- Stein, Stephan. 2003. *Textgliederung. Einheitenbildung im geschriebenen und gesprochenen Deutsch: Theorie und Empirie*. Berlin: de Gruyter.
- Stellmacher, Dieter. 2017. *Die niederdeutsche Sprachgeschichte und das Deutsche von heute*. Frankfurt a.M.: Peter Lang.
- Szczepaniak, Renata. 2015. Syntaktische Einheitenbildung – typologisch und diachron betrachtet. In Christa Dürscheid & Jan Georg Schneider (eds.), *Handbuch Satz, Äußerung, Schema*, 104–124. Berlin & New York: de Gruyter.
- Taylor, John R. 2003. *Linguistic Categorization*. New York: Oxford University Press.
- Tophinke, Doris. 2009. Vom Vorlesetext zum Lesetext: Zur Syntax mittelniederdeutscher Rechtsverordnungen im Spätmittelalter. In Angelika Linke & Helmut Feilke (eds.), *Oberfläche und Performanz. Untersuchungen zur Sprache als dynamischer Gestalt*, 161–183. Tübingen: Niemeyer.
- Tophinke, Doris. 2012. Syntaktischer Ausbau im Mittelniederdeutschen. Theoretisch-methodische Überlegungen und cursorische Analysen. *Niederdeutsches Wort* 52. 19–46.
- Traugott, Elizabeth C. & Graeme Trousdale. 2013. *Constructionalization and Constructional Change*. Oxford: Oxford University Press.
- Trousdale, Graeme. 2008. Constructions in grammaticalization and lexicalization: evidence from the history of a composite predicate in English. In Graeme Trousdale & Nikolas Gisborne (eds.), *Constructional approaches to English grammar*, 33–67. Berlin & New York: de Gruyter.
- Trousdale, Graeme. 2010. Issues in constructional approaches to grammaticalization. In Ekaterini Stathi, Elke Gehweiler & Ekkehard König (eds.), *Grammaticalization: current views and issues*, 51–71. Amsterdam & Philadelphia: John Benjamins.

- Trousdale, Graeme. 2013. Gradualness in language change. In Anna Giacalone Ramat, Caterina Mauri & Piera Molinelli (eds.), *Synchrony and Diachrony: A dynamic interface*, 27–42. Amsterdam & Philadelphia: John Benjamins.
- Ziem, Alexander. 2015. Desiderata und Perspektiven einer Social Construction Grammar. In Alexander Ziem & Alexander Lasch (eds.), *Konstruktionsgrammatik IV. Konstruktionen als soziale Konventionen und kognitive Routinen*, 1–25. Tübingen: Stauffenburg.

Simon Pröll

How many Natives with how many Systems? Intra-individual Variation and the Threshold of Multilingualism in Standard German Speakers

Abstract: Using the current nativisation of Standard German – and the resulting problem of estimating the number of native speakers of Standard German – as an example, this chapter discusses whether the intra-individual variation (IAV) of speakers using closely related varieties is a form of monolingualism with internal variation (suggesting inherent variability of just one system, allowing for output in multiple varieties) or a form of multilingualism (with variation occurring between two or more discrete systems of one speaker). The chapter provides arguments for the latter, ultimately arguing that intra-individual variation is best understood as the most basic form of multilingualism. From this perspective, monolingualism is not an empirical concept, but a purely theoretical one that marks the hypothetical endpoint of change processes such as standardisation and nativisation.

Keywords: standard language, native speaker, nativisation, language contact, multilingualism, Fermi problem

„Me fail English? That’s impossible!“

Ralph Wiggum, native speaker of English

1 Introduction

This chapter focuses on what can be called the “lower limit” of multilingualism in standard/non-standard contact situations, i.e. the threshold of what constitutes as different linguistic systems of one individual speaker. To this end, it addresses three issues that are interrelated: a) the nativisation process of standard languages, b) the problem of finding clear-cut criteria for defining central concepts such as *nativeness* and *standard*, and c) the question of whether contact scenarios of closely related varieties should be treated as multilingualism or monolingualism with variation.

The first two topics – nativisation and the issue of ill-defined concepts – are addressed, by way of example, via a question that seems trivial at first sight:

<https://doi.org/10.1515/9783110743036-012>

How many people in Germany speak Standard German as a native language? As of now, there is no empirical data on this, suggesting a probabilistic approach. Thus, Section 2 treats this issue as analogous to a Fermi problem, approaching it from a probabilistic perspective. It provides background on the nativisation process of Standard German (2.1) and splits the overarching question into smaller factors (2.2). As the answer largely depends on how we conceptualise *standard* (2.3) and *native speaker* (2.4), I evaluate different approximations for these factors.

The third topic – what kind of variation and what kinds of systems are we talking about? – arises from the first two: Section 3 addresses the ramifications of these findings for a theory of IAV in contact situations.¹ It focuses on the functional side of contact scenarios between systems (3.1), the possible types of contact (3.2) and the resulting types of variation plus the respective number of systems required (3.3).

Section 4 combines the estimates derived from Section 2 with those from Section 3 in order to provide a typology of native Standard German speakers and to discuss the implications.

2 Estimating the number of native speakers of Standard German

There are no reliable accounts on the number of native German speakers for any given timeframe. We are thus in a position where extrapolation (or rather educated guessing) is necessary. This requires some historical background on what exactly we are trying to estimate (2.1), methodological considerations (2.2) and estimates for the factors involved (2.3 and 2.4). The scope will be limited to speakers situated in the Federal Republic of Germany, as the nativisation process of Standard German is – for sociohistorical reasons – observable in a more advanced state in Germany than in the other German speaking countries.

¹ In line with this book's premise, throughout this chapter the term IAV is treated as “encompassing the entire breadth of observable variation within individual's behaviour” (Ulbrich and Werth in this volume). However, most of the variation to be dealt with probably falls into the category of *functionalised IAV*, as it can be indexicalised. Cases of doubt will be clearly marked and discussed.

2.1 L1-shift of Standard German

During the last decades, Standard German has been subject to a massive change process. Originally, Standard German was a purely written form of language, used (and even actively created/adjusted) to serve specific socio-cultural, predominantly literal functions (cf. Ágel 1999; Polenz 2000: 114–146). For centuries, it had no native speakers (see especially Weiß 2005): people spoke a German dialect natively, while a written standard slowly emerged for new functional domains that required communication beyond personal, oral interaction. This written variety extended into domains that used to be oral, thus gaining regionally varying forms of spelling pronunciations. Eventually, moderated through prestige, the schooling system and further sociolinguistic factors, parents with Standard German as L2 began using their L2 as input for their children's L1, thereby starting the ongoing process of *nativisation* of Standard German (see Pröll in print for further details and recent evidence). In nativisation, Standard German is for the first time used natively by speakers, a process that should likely restructure Standard German (as can be observed in other varieties that underwent nativisation, see e.g. Versteegh 1993; Romaine 2011).

2.2 Resulting subsets of speakers

Being a native speaker of Standard German seems to have two basic requirements:

- a) speaking Standard German and
- b) doing so natively.

Appallingly, it is not a trivial task to define what that actually means. Both the concept of Standard German and nativeness are – or at least have been – disputed, to say the least.

The first step is relatively uncontroversial. There is a population of speakers of German (let us call this population G) that is a subset of the number of inhabitants of Germany (I), meaning that $G \subseteq I$. A subset SG of this population G speaks Standard German, thus $SG \subseteq G$. A subset NSG of SG speaks Standard German natively ($NSG \subseteq SG$) (see Figure 1).

Although the actual number is certainly smaller, this predicts that the maximum possible number of native speakers of Standard German is the number of speakers of German. This comes as no big surprise, but is an important starting point nonetheless, as this number is obtainable. German government institutions have been collecting representative statistical data through questionnaire instruments, but they evaded the topic of language from 1939 onwards. The reintroduction of a

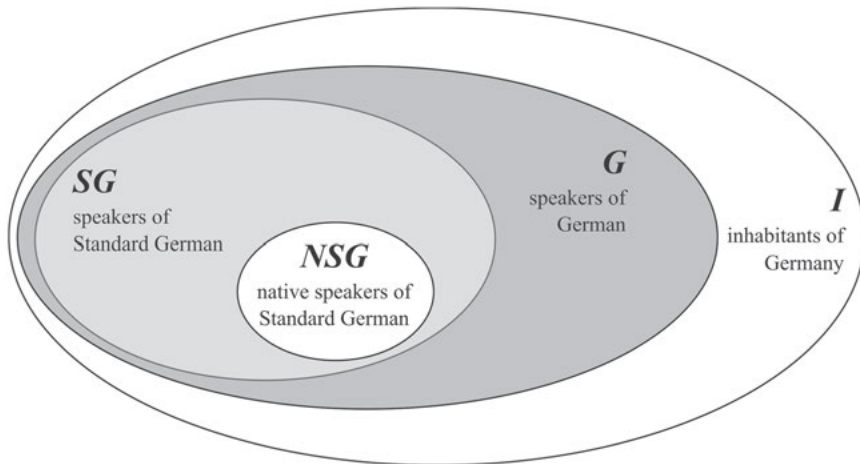


Figure 1: Sets and subsets of speakers of German (first version).

question on language usage in 2017's *Mikrozensus* was ultimately motivated by an interest in discerning the number of people with a migrant background and has some methodological issues (especially with regard to the possible answers other than German, cf. Adler 2019), but still, it might give us a rough starting point. Asked about the language spoken in the household predominantly, 87.0 percent (Adler 2019: 209) chose the answer “German”. Projected onto the total population of about 83 million inhabitants of the Federal Republic of Germany, this would amount to roughly 72 million people ($G = I \times 0.87$).

Generalised, the number of native speakers of Standard German is thus best estimated as a function of the following form:²

$$NSG = G \times f_s \times f_n$$

In this equation, f_s is the fraction of speakers of Standard German and f_n the fraction of people who do so natively.

The value of these fractions depends on how wide or narrow the scope of “standard” and “native” is understood to be. The following sections will first discuss the different scopes of “standardness” before addressing “nativeness”.

² This equation is a simplified version of the *Drake equation*, the probabilistic attempt to estimate the number of active and communicative extra-terrestrial civilisations in our galaxy. The principle (also called the *Fermi problem*) is essentially the same, arriving at an estimate by splitting up a highly complex issue into portions that are more readily solvable through educated guessing.

2.3 Approximations I: Standard

Definitions for “standardness” are abundant, but conveniently, most of them can be fit into a typological grid of the kind displayed in Figure 2. I postulate two axes for this grid: One (“content”) is concerned with the linguistic subsystems that need to be included in standardisation processes (as e.g. outlined by Haugen 1966: 933), the other (“edge”) is the degree of permitted variation within these systems.

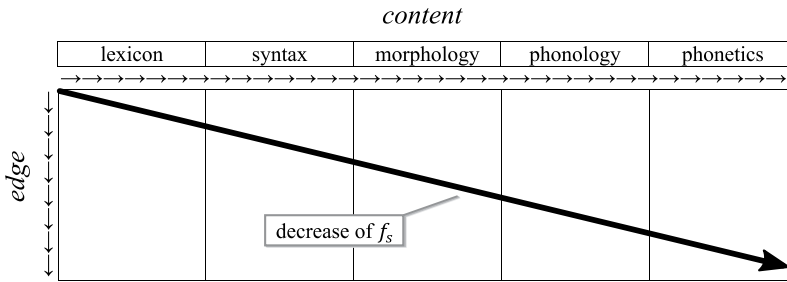


Figure 2: Typological grid for definitions of standardness.

Both “edge” and “content” are best seen as continuous parameters. While “content” might look categorical at first glance (as indicated in Figure 2 by vertical lines), usage-based approaches and especially construction grammar would vigorously argue against language structure being categorical per se (see i.e. Goldberg 1995). For the purpose at hand, this discussion is of no great concern; the main point is that it seems that the different linguistic subsystems (be they fluid or categorical) carry an implicational hierarchy of the sequence *lexicon* < *syntax* < *morphology* < *phonology* < *phonetics*, meaning that for example if a definition of standardness relies on (typically) phonological features, it (sometimes implicitly) relies on morphology, syntax and lexicon being standardised as well, but not vice versa. The maximum value for content thus is requiring standardisation of phonetic realisations.

A postulation that is omnipresent in definitions of standardness is the need for codification (see Haugen 1966: 933; Huesmann 1998: 21–23, 29; Inoue 2006). As the degree of stipulated codification of the standard variety is directly related to the amount of permitted variation (i.e. more codification yields lower variation), there is no need to treat both factors independently; they merely constitute two ways of expressing the same principle (here dubbed “edge” for convenience).

Obviously, the potential fraction of standard speakers f_s decreases with increasing scores for content and edge. For evaluating different scenarios, we will start with the more exclusive ones (those that yield a low f_s).

The most extreme view on spoken Standard German is that it is a fully dependent function of written Standard German, i.e. the completely invariant oral counterpart of an equally invariant literal system. As codification is one of the recurring prerequisites proposed for a written standard variety, this position requires a fully codified oral form as well: the orthoepy. Everything outside the parameters of orthoepy is non-standard. For German, this position is not really viable, as there is no single invariant orthoepy for Standard German, but several semi-official pronunciation dictionaries (Siebs, Duden, DAW) that are not even congruent with each other (see König 2000; Kleiner 2014). In this case, $f_s=0$. But even if we set a single one of the pronunciation dictionaries as fully authoritative, f_s would remain seriously low: Even professional, trained model speakers tend to miss the orthoepic norm (cf. Stellmacher 1975; Pröll submitted). If we assume that Germany has a few hundred radio and TV stations with an average of maybe a dozen professional speakers (a rather optimistic estimate) plus a few hundred or thousand professional voice actors, we would have to expect a number of standard speakers that is at maximum in the low five-digit range (give or take a few thousand). This would yield a value for f_s somewhere between 0.0001 and 0.0002.

An approach that – at first glance – seems substantially different to this is to fully rely on salience, that is on socio-psychological parameters instead of inner-systemic ones. Schmidt and Herrgen (2011: 62) define Standard German as the variety that speakers of German maximally aim to accommodate to.³ Standardness is thus defined as what laypeople regard as standardness. Leaving aside the issues that arise in diglossic societies (see e.g. Seiler and Pröll 2020), the consequence is de facto a concept of standard that at least in German is relatively close to the one outlined above. Laypeople are not uniform in their judgement, and neither is their ability for introspection. But still, Lameli (2004) suggests that this perceived “target value” of standardness is highly similar to orthoepy, with relatively small differences due to regional variation. So, while a definition of standardness based on the hearer rather than the speaker (i.e. perception-based instead of production-based) is a change of perspective that opens up stimulating new questions, in terms of defining a standard, there is not much difference to a model based on orthoepy. This might be a result of the specific sociolinguistic situation in Germany, where there is a strong ideological fixation on an invariant “spoken standard” (see Maitz and Elspaß 2013) in the form of a reading pronunci-

³ Schmidt and Herrgen (2011) in fact do not speak of *accommodation* here, but of *macrosynchronisation*. While both concepts as a whole differ from each other (cf. Seiler and Pröll 2020), they do not seem to do so in a way relevant for the question at hand here. Thus, priority was given to the less specific, more widely familiar term.

ation (as opposed to i.e. the English speaking world, where phonetic or regional variation is not automatically considered non-standard, see Durrell 1999: 292).

Empirical usage-based positions go hand in hand with high scores for content, but low ones for edge. The first detailed investigation of spoken Standard German usage, König (1989), aimed at capturing the “most formal” manner of speaking that young speakers of higher education without professional articulatory training are capable of.⁴ The point, of course, is: If these speakers cannot be considered standard speakers, then standard would be something one needs special tuition for. The “Deutsch heute” project (published as the *Atlas zur Aussprache des deutschen Gebrauchsstandards*, short AADG; see also Kleiner 2014), a modernised and largely expanded continuation of the basic concept introduced by König (1989), links this conceptualisation of standard to the sociolinguistic view on standard varieties present in the English speaking world (and explicitly to Barbour and Stevenson 1998, cf. Kleiner 2014: 277).

Let us for the sake of argument act as if the AADG data were representative of the overall German situation and see – for some selected variables – how high the percentage of standard realisations would be. According to most German pronunciation dictionaries, <ch> in *Charisma* ‘charisma’ should be realised as [ç], when in fact this “standard” realisation is not used by one single AADG speaker in Germany, Switzerland or South Tyrol and only 2 percent of Austrian speakers.⁵ Orthoepy expects the <v> in *evangelisch* ‘evangelical’ to be realised as [v], however only 29 percent of AADG speakers in Germany do so; the remaining 71 percent realise it as [f] (Kleiner 2014: 279–280). Features such as the realisation of <st> as either [st] or palatalised [ʃt] (in lexemes like *Steak* ‘steak’ or *Spray* ‘aerosol’) are both considered possible by modern codifications. Their distribution varies depending on lexeme and region, but there is no documented (or documentable, for that matter) non-standard form.⁶ Thus, even if we only consider three variables, the degree of standardness of the AADG speakers varies over the entire spectrum that would be logically possible ($0 \leq f_s \leq 1$).

The inclusion of phonetics is thus due to a documentary interest, not a normative one. Phonetic inter-individual variation is not seen as a sign of deviation from the standard, but as possible (equal) alternatives of realising the standard. In this train of thought, uniformity is thus at the maximum given at the level of phonology or even only morphology. For example, Standard German (along with

4 “Unser Material bildet die oberste Sprechweise ab, in der sich gebildete Sprecher ohne Sprechausbildung bewegen können [our material reflects the most prestigious way of speaking that educated speakers without formal speech training can make use of]” (König 2004: 189).

5 <http://prowiki.ids-mannheim.de/bin/view/AADG/CharismaCh>

6 <http://prowiki.ids-mannheim.de/bin/view/AADG/SteakSprayStSp>

most of the German non-standard varieties) features a phonological distinction between a “tense” (/p, t, k/) and a “lax” (/b, d, g/) set of plosives. But the concrete phonetic realisation of this distinction is not uniform, it follows a regional pattern (see the respective maps of the AADG). In the northern regions with Low German substratum, the distinction is mainly based on ± aspiration (and possibly ± voice), whereas the southern regions may instead show a contrast of ± fortis. The underlying phonological system is identical, the phonetic realisation is not.

Auer (1997: 159) follows a similar notion, claiming that there is a “core” of Standard German phonology underlying this phonetic variation that is applicable to the entire German speaking area. He supposes that this common phonology mirrors (codified) Standard German orthography while ignoring regional realisations (such as variation in aspiration, vocalisation, voicing of lenis, et cetera). Still on a phonological level, Pröll (in print) suggests using suprasegmental features – more precisely constraints on possible syllable structures – as a test for distinguishing standard and non-standard varieties. The reasoning behind this is that this aspect of phonology is both subject to early acquisition (and thus relatively stable with regard to changes during speakers’ lifespans) and usually not explicitly accessible to the introspection of laypeople (making it less prone to become overwritten by sociolinguistic attitudes).

As far as I can see, there are no conceptualisations of Standard German that explicitly rely solely on morphology or syntax.⁷ However, it would obviously be possible to postulate such a definition, where standardness is i.e. measured with regard to adherence to morphosyntactic norms while allowing for (conditioned as well as non-conditioned) IAV in phonological and phonetic realisation. Such positions on standardness with both low scores for content and edge may occur implicitly and are best described as ex-negativo-perspectives (see also Hagemann et al. 2013: 1–2): Standard is the absence of non-standard features. This is especially self-evident when it comes to lexical choice. If a speaker uses lexical items that are regionally or stylistically marked (see also the concept of communicative *Reichweite* ‘range’ formulated by König 2010), she is using non-standard variants. The same can be applied to morphosyntactic properties: For example, while some non-standard varieties of German feature negative concord (i.e. the occurrence of more than one negative element for negation, cf. Moser 2019; an equivalent structure can be seen in American English, e.g. *that ain’t no problem*), Standard German does not. The absence of negative concord can thus be con-

⁷ Information on morphosyntactic variation that is considered to be within the limits of written Standard German is easily available since the publication of the *Varietätengrammatik des Standarddeutschen*.

sidered an indication of speaking Standard German. Swabian regiolects have a number distinction in diminutives (sg. [ʔɔɪ 'kɛtslɛ] ‘a kitten’ vs. pl. [tsvɔɪ 'kɛtslə] ‘two kittens’), while Standard German does not (sg./pl. ['kɛtsçən]). Speakers that use a singular vs. plural distinction – regardless of their phonetic form – thus are not using Standard German.⁸

The lowest scores for edge are provided by purely functional/situational models of standardness, where standard is defined as the form(s) of language used in contexts that pragmatically require (or encourage) the use of a standard variety. This would imply that there can be no unified formal side to standard utterances, on any of the linguistic levels. The number of speakers of Standard German would thus be identical to the number of people that are able to successfully communicate in formal settings using German language. As König (2004: 177–178) notes, this falls predominantly within the scope of social sciences, not of systemic linguistics.

In summary, we can observe that the different concepts of standardness present in the German speaking area imply vastly different numbers of actual *speakers* of Standard German. Concepts with extremely high edge that rely on a codified norm of phonetic standardness on a lexical level (such as the orthoepic norm of pronunciation dictionaries that largely ignores phonetic/phonological processes above the level of phonological words) yield a f_s -value of 0. On the other end of the spectrum, under approaches that consider standard usage to be a purely functional/pragmatic category, we would have to assume that every speaker who is able to effectively communicate in a domain that requires standard usage is a competent speaker of Standard German. At the beginning of the 21st century, this would probably include almost the entirety of autochthonous speakers of *any variety* of German (*G*) and lead to a f_s -value approaching the maximum of 1 among them.

Let us now focus on the other variable of the equation, the fraction of native speakers.

2.4 Approximations II: Nativeness

The consensus on language acquisition for some time has been that there is a very specific age effect for acquiring a language natively – above a certain threshold, the ability of children (and adults) to achieve native competence is reduced.

⁸ This actually requires Standard German to be grammatically less complex than the rest of the German varieties.

This *critical period hypothesis* (following Lenneberg 1967) has been enriched with further differentiations over the years (see e.g. Haznedar and Gavruseva 2013 for an overview); while there is no clear evidence fit “to establish explicit temporal limits for a biological critical period” (Herschensohn 2013: 317; see Grosjean 2010: 185 as well), it has been argued that the probability of gaining native-like competence slowly diminishes with ages of five (pessimistic estimate) to twelve (optimistic estimate) (see Haznedar and Gavruseva 2013; Herschensohn 2013).⁹ In recent years, however, the critical period hypothesis has attracted much criticism, mostly for two reasons: First of all, while it is empirically impossible to falsify all of its predictions, some of them have in fact been falsified (cf. Birdsong and Vanhove 2016; Flege 2018). Second, it is unnecessary to postulate critical period constraints to account for the variation observed in the data (Vanhove 2013; Bialystok and Kroll 2018). Especially research on late learning (such as Pfenninger and Singleton 2019) has furthered the understanding that factors and predictors of successful acquisition are numerous.

Additionally, there is a fair share of critique concerning the clear-cut separation that stems from looking at results rather than processes: Grosjean (2010: 185–186) emphasises that “[t]he only real advantage for acquiring a language at an early age is in pronunciation skills, but [. . .] even teenagers and some adults can learn to speak without an accent”. But even more to the point, accents may be irrelevant anyway. Native or near-native knowledge of a variety does not require absence of an accent (cf. Grosjean 2010: 78), as the large family of World Englishes clearly demonstrates. While regionality is often expressed through accents, this alone does not imply non-standard. Spoken standard norms may be regionally unmarked, but they need not be (cf. Røyneland 2010: 262): Nearly every standard variety based on upper class speech of a city can serve as respective counterexample.¹⁰

9 Birdsong and Vanhove (2016: 164) perceptively point out that what is historically referred to as a single hypothesis is in fact “a conglomerate of partly overlapping, partly contradictory hypotheses”.

10 It is worth noting that the philologies of the German speaking countries, especially the German ones, still seem to have ongoing issues with accepting variation (especially regional variation) as a natural feature of standard varieties. This is probably due to ideological motivations, cf. Maitz and Elspaß (2013: 36): „Die Homogenitätsideologie wiederum beinhaltet die Überzeugung, dass die sprachliche Vielfalt ein negatives/abnormales/gefährliches Phänomen darstellt, sodass die sprachliche Einheit zu Lasten der Variabilität gefördert werden soll. [‘The ideology of homogeneity, on the other hand, includes the conviction that linguistic diversity is a negative/abnormal/dangerous phenomenon, so that linguistic unity should be promoted at the expense of variability’, my translation]“

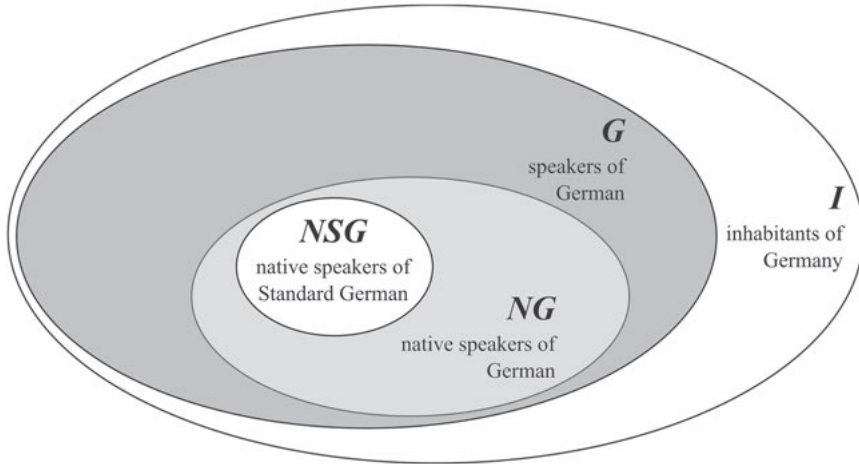


Figure 3: Sets and subsets of speakers of German (second version).

If we now take a second look at the sets introduced in Figure 1, there is a further subset of all speakers of German (G) that we have ignored so far: the subset of speakers that speak *some* variety of German natively (NG), of which the set of native speakers of Standard German (NSG) is a subset as well, see Figure 3.

Again, there is data from surveys available on how many people belong to this category. At about the same time that the German government conducted the *Mikrozensus*, the *Institut für Deutsche Sprache* (IDS) administered a questionnaire on the *mother tongue* (“Muttersprache”) of its participants in which 87.9 percent indicated German as their native language (Adler 2019: 213). This could be falsely understood as $f_n = 0.879$, but keep in mind that here, $NG \neq G \times f_n$: The value of 87.9 percent does not refer to a fraction of speakers of German (G), but to a fraction of inhabitants of Germany (I), without further specification on whether or not they know any German. Thus, $NG = I \times 0.879$, which amounts to approximately 73 million people. Puzzlingly, this number is actually higher than the one that the *Mikrozensus* suggested for households where German is the predominant language (see above, 2.2) and that we intended to use as proxy for estimating the value of G . This seems like a contradiction, because the sets established here would logically prohibit a scenario where $NG > G$. More than one explanation is feasible for this conundrum: There are methodological differences between both studies (for example, only the IDS-survey provided the option of multiple answers), nativeness of single persons might not result in predominant usage in households, and social desirability might have distorted the responses as well. Based on the IDS-survey, we could thus assume approximately 73 million native

speakers of German in Germany ($NG = I \times f_n$).¹¹ This extrapolation is relatively close to the one postulated by Haarmann (1993: 44) that arrives at 76.5 million native speakers in Germany, 7.6 million in Austria and 4.1 million in Switzerland – albeit his numbers are for 1991. As he has a rather low threshold for what can be considered “native speaker” (see also Ammon 2000: 477–482), those numbers should (despite being almost three decades old) best be seen as an upper boundary of nativeness in German.

Germany is a country with compulsory education, requiring children to enter the schooling system at the age of five (at the earliest) to seven (at the latest – thus possibly within the boundaries of a critical period –, with a minimum duration of nine years. Maitz and Elspaß (2013: 38) stress that this practically *forces* children to acquire the standard variety of German (see also Ballmer 1981: 55). An extreme interpretation following from this observation would be: Every single speaker of German that was schooled in Germany could be seen as a native speaker, as she went through an immersive acquisition phase ($f_n = 1$). If we generalise empirical data drawn from L2-acquisition of varieties that are *not* mutually comprehensible, we obviously arrive at much lower estimates: Birdsong (1999: 15) suggests a success rate of about 15 percent in respect of attaining native-like competence, given that the environment is immersive and favourable enough ($f_n \approx 0.15$). Instructional contexts are not considered immersive per se, but standard language use in German schooling contexts is often holistic, thus more extensive and not limited to actual instructional situations. Additionally, the target language is structurally very similar to the learners’ original varieties; thus could certainly have further positive impact on this percentage (see below, Section 3.2). Again, data on this is rare. According to Huesmann (1998: 109), only 28 percent of Standard German speakers acquired the standard variety not at home, but only in school or later, implying that a majority of nearly three fourths of German pupils were users of Standard German before the age of five to seven. Under these assumptions, $f_n \approx 0.72$. However, it should be kept in mind that this number is a result of layman introspection in a questionnaire setting: The study is based on self-assessments of the participants on their own standard and non-standard use.¹²

11 The IDS-survey even suggests that different members of one household might have different views on what qualifies as the “predominant” language of the household (cf. Adler 2019: 215–216).

12 Methodologically, this hints at an issue that will be discussed later: For contact situations involving closely related varieties, there may often be no clear indication of which variety a certain speaker is using at a specific moment – especially if we accept that neither the presence of variation nor an individual/regional accent implies non-standardness.

Related to this, we might ask how scenarios such as the (fictional and exaggerated) one in the opening quote of this chapter (by the Simpsons character, Ralph Wiggum, who is commenting on receiving an academic alert from his school) are possible. Ralph may not be an overly intellectual type, but he is nonetheless usually (implicitly) portrayed as a native speaker of American English. Native speakers may exhibit performance slips and errors, but they cannot have defective competence systems (cf. Trudgill 1975: 38–45). So how is it even possible that children can fail classes in their mother tongue? Clearly, this must mean that the requirements for schooling contexts differ from native everyday usage in a substantial way.¹³ The reason for this is that modern standard varieties serve cultural purposes that are explicitly literate (as opposed to oral, see Ågel 1999 as well as Maas 2003). Accordingly, the focus in educational settings is on teaching decidedly literal skills. This is not merely a question of modality in the sense of teaching how to write, but a whole socio-cultural complex (see also Maas 2003). Schooling in standard varieties aims at generating specific functional and situational knowledge that is not part of oral first language acquisition – and therefore independent from conditions of nativeness.

Section 2.3 showed that in principle very low values for standardness ($f_s \approx 0$) might be conceivable, but restrictions on nativeness do not seem to be equally harsh. In sum, it seems that on the empirical side nativeness is conceptually less important to our problem than it originally seemed to be: If we are not able to distinguish nativeness from (very) high L2 proficiency anyway – and near-native proficiency is at the same time induced through homes or at the latest the German educational system –, then the criterion itself might not be of much use from a pragmatic viewpoint. Even more to the point, installing a binary categorical division into “native” vs. “non-native” does not seem to be an adequate formalisation of reality (see especially Davies 2003). We will have to revisit this observation. Nonetheless, f_n should not be ignored prematurely, both out of theoretical (and universal) considerations as well as because it still has a dampening effect on *NSG*.

3 Assessing the number of systems per speaker

How do the different subsets from Figures 1 and 3 relate to each other? Figure 4 combines them into one single scheme. While the native speakers of Standard

¹³ It is worth noting, that – in accordance with the above remarks on different standardisation concepts in the English vs. the German language areas – Ralph’s non-standardness here is suggested by means of morphological and syntactical features, not phonetic/phonological ones.

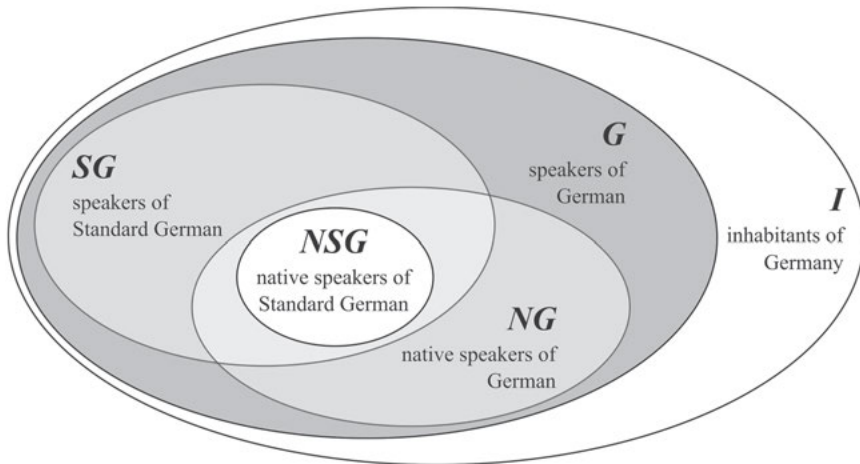


Figure 4: Sets and subsets of speakers of German (final version).

German are a subset of the native speakers of German as a whole ($NSG \subseteq NG$), and the speakers of Standard German have an intersection with the native speakers of German ($SG \cap NG$), it is important to stress that not all native speakers of German that are speakers of Standard German have to be native speakers of Standard German.

This is where the third topic of this paper comes into play: multilingualism.¹⁴ Extrapolating from the number of standard German native speakers may look unrewarding at first, but the issues that this thought experiment touches upon have an uncomfortable consequence: We do not know how small-scaled this kind of language contact gets and to what extent IAV (in any of its possible forms: non-conditioned, conditioned or functionalised, see Ulbrich and Werth in this volume) is involved. What kind of variation are we talking about? There might be people who speak a standard variety as their sole (native) language. These speakers are usually considered to be monolingual. Others, however, might be speakers of both a standard and a closely related non-standard variety. Can those speakers be considered monolingual speakers of one language that branches into standard and non-standard variants (i.e., can these speakers be considered to have internal variation of one system) or should they be considered bilingual speakers of two distinct systems, without system-internal vari-

14 For this chapter, let us assume that for the sake of argument ‘multi’ simply signifies ‘> 1’, meaning that bilingualism is subsumed as a form of multilingualism: The issue of bi- vs. multilingualism is complex, but largely irrelevant for the question at hand (but see e.g. de Bot and Jaensch 2015).

ation? Is the number of grammatical systems that a theory (any theory, really) has to assume to aptly capture the competence of those speakers identical to the number of varieties involved? Are these systems expressions of non-conditioned, conditioned or functionalised IAV?

3.1 Contact of systems and sub-systemic variation

Let us start off by defining a linguistic “system” as plainly as possible: as a set of elements and rules that allow for the production and reception of unambiguous symbolic output in one “language” (i.e. a “grammar”). A hypothetical, idealised speaker featuring an idealised single system would therefore barely represent a human repository of the simplest Saussurean *langue*. Now, if the question of the number of internal systems in non-hypothetical, non-idealised speakers is a question of the contact of these kinds of systems (see already Weinreich 1967), we need to ensure that these systems are consubstantial in their nature: We need to make sure that it is valid to transfer contact concepts from the default case of commonly researched (mutually unintelligible) standard languages to closely related varieties, as most research on language contact and interaction has been conducted on languages with considerable systemic differences. Seiler (2017) argues that If there are no means to discriminate dialects from languages on structuralist (system-internal) terms (i.e. the distinction is a purely socio-historical one), then there are no reasons for assuming contact between dialects is technically anything else than any other form of language contact. It seems natural to extend this notion: If dialects and languages differ only because of socio-historical status, not structural features, then acquiring more than one variety is a form of multilingualism, no matter how close these varieties are from a structural perspective or whether they are referred to as dialects or languages (see also Weinreich 1967: 1–2; Haugen 1969: 6).

However, varieties tend to be used in more than one functional context. This means that there is bound to be variation that is not between varieties, but between conditions of usage of just one variety, including, for example, register variation. Schmidt and Herrgen (2011: 49) thus assume two different kinds of variationist competence of speakers: competence concerning the handling of different varieties on the one hand (= systemic variation) and different registers on the other (= register variation). In the German-speaking areas, non-standard varieties and the emerging standard used to be used for specific functional contexts with little to no overlap. Advocating an extreme position, one could argue that under these conditions, the use of both standard and non-standard by one single individual is a case of register variation or stylistic variation: One

overarching system of German has different formal peculiarities depending on functional backgrounds, but speakers are basically monolingual in the sense that they only possess one underlying system. This would be functionalised IAV (within one system, if we conceptualised ‘system’ in the Saussurean spirit). There are several issues with this position, perhaps the two most obvious being the following: Firstly, the language situation in the southern regions of the German speaking area – especially in Switzerland – does not lend itself easily to this conclusion. Most speakers of German in Switzerland would probably reject the notion that their High and Highest Alemannic base dialects (used for oral communication) and the Swiss variety of Standard German (used for formal contexts, in written form and for communication with external speakers that are not accustomed to High and Highest Alemannic base dialects) belong to one single system and are distinguished by nothing more than usage conditions (see i.e. Hägi and Scharloth 2005; Ender and Kaiser 2009). Secondly, while Standard German has been a primarily written L2 in the past, its contemporary form is – not least due to its nativisation process (see Section 2.1 and Pröll in print) – expanding into functionally oral contexts that were formerly solely occupied by the non-standard varieties. So, while this does not rule out the notion that situation may govern choice of variety (= register variation), choice of variety is systemic variation for speakers who use both Standard German as well as a non-standard variety natively.

3.2 Systems of contact and isomorphism

Consequently, it is reasonable to treat speakers that use both standard and non-standard varieties as multilinguals, as for example Berthele (2008) explicitly advocates.¹⁵ This kind of multilingualism of closely related varieties poses an empirical problem: Borrowing (L2 → L1), substratum interference (L1 → L2, see Sankoff 2013: 503) or code switching in contact situations of varieties that differ substantially can be observed quite easily. For example, the borrowing of German lexemes into colloquial Turkish or Russian by migrants is immediately obvious

¹⁵ See also Weinreich (1967: 2): “And while control of two such similar systems is not ordinarily called bilingualism, the term in its technical sense might easily be extended to cover these cases of contact as well.” This position is not as self-evident as one might expect: Dietrich (2007: 120–121) for example explicitly defines bilingual L1 acquisition to be simultaneous acquisition in two varieties of different languages. It is unclear whether this is due to terminological sloppiness or choice, but in any case it illustrates Weinreich’s observation that closely related varieties are not necessarily considered of interest in research on multilingualism, at least outside of dialectology.

and without doubt evidence of multilingualism. The same would to some degree apply to the incorporation of Low German lexemes into High German (and vice versa) and any other case where both varieties can be distinguished through their respective phonologies. But closely related varieties share many forms, functions and form/function pairings, i.e. they show a high degree of isomorphy. Thus, borrowing of Standard German elements into any non-standard variety may go unnoticed; it only becomes apparent if there is no isomorphism in form and function between the standard and the other variety.¹⁶ If we do not conceptualise Standard German as a completely rigid, invariant system, thus allowing for a certain range of variation, then there is an enormous amount of isomorphism between modern German varieties, meaning that we would often be unable to distinguish what system an element is originating from. This is especially striking when one considers the origin of modern German regiolects that constitute a layer that is sandwiched between the dialect stratum and the standard variety.¹⁷ Its form and structure are to a large degree taken directly from the (for a long period solely L2) standard variety, i.e. “even the more informal colloquial variants are all *descendants of Standard German*” (Weiß 2004: 651, emphasis in original).

Directly related to this, an ongoing discussion in research on multilingualism and second language acquisition is concerned with what is shared across languages by multilingual speakers: Do bilinguals possess one or two lexicons? As of now, this question proves difficult to answer, as “lexicon” is a sketchy term, there is no agreement on whether a common semantic system is feasible, and access of items cannot be separated from their representation (see Kroll and Sunderman 2003 for an overview). It is obvious that language systems of bilinguals are not completely unrelated, but quite clearly interconnected, from early age onwards (cf. Redlinger and Park 1980; Paradis 2001): Priming experiments for example show that “the other-language alternative is available well into the process of planning to speak a word in one language alone” (Kroll and Sunderman 2003: 118), i.e. during the planning phase of an utterance, the phonological networks

16 If course, this is also true for the reverse process, substratum interference of the non-standard varieties on the standard.

17 As a side note, Røyneland (2010: 260) suggests that these processes of vertical convergence (such as the emergence of regiolects) itself reduce variation between systems, but that the degree of variation may rise “intra-systemically” for some time (i.e. during the process of convergence), because convergence supplies speakers with a larger repertoire of forms. As a long-term effect, however, there will presumably be “a reduction of variety-internal variation” (Røyneland 2010: 260) as well. While this is of interest for the dynamics at work in close contact situations overall, it does not necessarily concern speaker-internal variation, as it may manifest only as variety-internal variation.

of both languages are activated in parallel.¹⁸ In cases of isomorphism, assuming two fully independent semantic entries in two completely separated lexicons seems at least uneconomical. On the contrary, Berthele (2008: 90) assumption is that high similarity of the involved varieties in multilingualism leads to especially intensive connections between these systems. Not surprisingly, de Bot (2010: 342), in evaluating the fitness of speech production models for bilingual production, points out that the likeliness of transfer of rules (or elements) between languages increases with their similarity. But we may be asking the wrong questions by hypostatizing the subject; as de Bot (2010: 348, emphasis in original) phrases it, “[m]odels should take into consideration that *languages* do not exist as entities in the brain and focus on situation-associated networks instead”. This casts doubt on the notion that “systems” in IAV are in fact reasonably distinguishable from each other. Neuropsychologically, at least from the stance of dynamic systems theory, it might not even make sense to propose separate systems in one speaker at all.

In summary, speakers using Standard German and non-standard varieties of German natively (or in a way that is indiscernible from natively) exist (see Sections 2.1 to 2.4). The type of variation between standard and non-standard usage is not limited to register variation, but also includes systemic variation (see Section 3.1); and this systemic variation is best understood as multilingualism with a certain degree of isomorphy and strong psycholinguistic interrelations between varieties (see section 3.2). Obviously, this is a form of IAV in every possible definition. What remains unclear is whether it is variation happening between multiple invariant systems or variation within one single, variable system. Schmidt and Herrgen (2011: 49) seem to suggest that both might be true for different types (and, implicitly, subsequent generations) of speakers, but they do not seem to factor in a) the possibility that speakers are native speakers of Standard German (see Section 2.1) and b) the observation that standard/non-standard variation in German need not be limited to register variation, because Standard German as a native language is expanding into every functional domain (see Section 3.1).

3.3 Types of variation vs. number of systems

In other words: If we conceptualise standard and non-standard usage of one single person as just one system, we need to assume grammars that allow for internal

18 This is good evidence for the fundamental notion that a multilingual is not simply one person incorporating several monolinguals (cf. Dietrich 2007: 123; Hernández et al. 2007: 371).

variation. Not all theories of grammar can aptly deal with this.¹⁹ If we instead understand standard and non-standard usage as multilingualism, it seems – at a first glance – that while we would inconveniently need to assume two distinct grammars, those could at least be without internal variation. To deal with this issue, Cook (1991: 103) introduces the concept of “multicompetence”: In acquisition, children are subjected to input from more than one grammar, and they are afterwards able to produce output that conforms to more than one grammar. Roeper (1999: 169) goes so far as to postulate “universal bilingualism”, assuming that every speaker “has a set of mini-grammars for different domains”. This entails that even register variation is not a feature of just one single grammar, as vice versa “a shift in grammar signals a shift in social register” (Roeper 1999: 173). The consequence would be that Schmidt and Herrgen’s (2011) distinction between variation on the level of registers and varieties is relevant for analyses of usage, but of no consequence for our question at hand – both types of variation draw on the existence of multiple underlying systems.

It has been proposed that we differentiate between *variation* and *optionality*, but again, this comes at the cost of having to assume multiple systems, cf. Sorace (2003: 137): “Optional forms belong to different grammars; therefore, optionality, as a visible manifestation of a state of diglossia, is not internal to the grammar.” Of course, this could again necessitate a whole bundle of distinct grammars for some speakers. Sorace (2003: 136) stresses that optionality is “neither a necessary nor a sufficient condition” for the occurrence of variation on the surface; it is merely knowledge concerning grammaticality of competing structures. Variation arises only through active usage, and even then it does not necessarily spell out underlying optionality. Without explicitly mentioning optionality, Lincoln (1979) calls this potential lack of overtness “dual-linguism”, a form of “passive bilingualism”, where additional grammars are only used for perception and not for production – a notion that seems natural for the explanation of accommodation phenomena, see e.g. Seiler and Pröll (2020) as well as Ulbrich (in this volume). Intra-individual variation should thus be visible (but may of course be obscured by isomorphy), and is either an overt sign of optionality or of contact of systems. Following Roeper (1999: 176, 184), the only feasible way to differentiate between those two sources of variation would be through phonological differences. The idea is that optionality should only occur within one “language” (and thus within a phonological system, as other “languages” would have clearly divergent pho-

¹⁹ See Roeper’s (1999: 170) postulate: “We are now purifying the term grammar to include the claim that any consistent grammar cannot have contradictory rules. Therefore one must postulate two grammars, even if they differ only in a single rule.”

nological systems), but it seems that this is a notion shaped by the fallacy of assuming that a clear separation of languages from varieties exists (see Section 3.1). In any case, the number of necessary systems needs to be greater than one.

4 A typology of native Standard German speakers

To recapitulate: Section 2 established the factors involved in determining the number of native speakers of Standard German and gave estimates on the possible range and variety of their values. Section 3 discussed what kinds of internal grammatical variation these speakers possibly have. As a last step, this section tries to combine and interlock these two preceding sections. First of all, we can deduce that following our deliberations at least five categories of native speakers of Standard German are theoretically possible.

- category 1: true Standard German monolinguals
- category 2: speakers that produce Standard German with optional structures
- category 3: speakers that produce Standard German with optional structures while also understanding (but not using) non-standard utterances
- category 4: speakers that produce standard and non-standard utterances with both optional structures and variation occurring independent of situation, i.e. variation between varieties
- category 5: speakers that produce standard and non-standard utterances with both optional structures and variation occurring dependent on situation, i.e. register variation

It does seem that, as long as our concept of “grammar” does not allow for internal variation (including contradiction), the existence of a true Standard German monolingual (category 1) – and, incidentally, monolingualism in general – is a purely theoretical notion. With no man being an island, any contact between individuals should induce the need for at least some low-level form of additional system(s), resulting in basic multilingualism. Monolingualism is a theoretically useful, but hypothetical concept, perhaps comparable to the “total vacuum” of theoretical physics, which is a theoretical necessity, but unobtainable under any real-live conditions in our universe.

Multilingual speakers that are only natives of Standard German probably do exist and will rise in number. At this point in German language history, with still a large number of non-standard users, it is hard to conceive of this group

not having at least basic understanding of non-standard utterances (category 3). Thus, while a future community of German speakers might include individuals with nothing but Standard German optionality and without “passive” knowledge of any other variety (category 2), this is not a feasible scenario for the beginning of the 21st century.

Most modern native speakers of Standard German will probably belong to one of the types that actively produce at least some non-standard utterances, either driven by variety (category 4) or register variation (category 5). Above, I have tried to argue that the makeshift concept of “bi-” or “multilingualism” is flawed for our purpose, because it relies on an ad-hoc distinction between “languages” – rather than systems – that cannot be made purely on the basis of linguistic features (see Seiler 2017). Commonly, the difference between “monolingualism” and “multilingualism” is drawn either between a) speakers with register variation vs. those with variety variation or b) between speakers with variety variation vs. those with “language” variation – whatever that might mean (possibly this can be operationalised as “both varieties have a low grade of isomorphism”, see Section 3.2). I would argue that this view creates more issues than it solves. It masks the psycholinguistic and contact linguistic situation in which these people exist by suggesting a qualitative, dichotomous difference where none exists.

As we have seen above, the actual numbers of these groups of speakers can only be estimated very roughly, because the premises are ill-defined, and their possible interpretations show a wide margin of variation. To conclude this attempt at a typology of native Standard German speakers, the remainder of this section will present a sample of possible scenarios of resolving $NSG = G \times f_s \times f_n$.

The first block covers the low estimates. The assumption of very low values for the percentage of standard speakers (f_s), as required by standard definitions that rely on orthoepy or trained speakers, predicts extremely low absolute numbers: With one factor approaching 0, the other one – the proportion of native competence (f_n) – does not really have any further impact on the overall magnitude (Figure 5).

In all probability, the native/native-like speakers of these estimations would have to be speakers of categories 4 or (preferably) 5. It seems natural that language change from a situation where the standard variety is an L2 to all speakers towards a situation where it is the sole L1 of all speakers (a nativisation process in the sense of Weiß 2005; Pröll in print) would run through the categories in descending order, starting with category 5 (register variation of individual speakers), generalisation to category 4, and stages of attrition of the non-standard variety to categories 3 and 2. Category 1 is a hypothetical endpoint of the trajectory that cannot be reached under natural conditions, a kind of “singularity” that the change process converges to without possibly reaching it.

the ones that rely on relatively moderate premises. This is unsettling: We should not have to use *plausibility* as a criterion for the evaluation of our seemingly objectified method (see below). But nonetheless, thought experiments such as this one can serve an epistemological purpose, not least by shedding some light on how seemingly trivial questions concerning well-researched varieties still reveal basic and fundamental issues.

5 Concluding remarks

In the course of this article, I have tried and failed to provide definitive answers to the following two interconnected questions: How many native speakers does Standard German have? How many grammatical systems do these speakers have? Regarding the first question, an attempt was made to find an approximation using a Fermi estimate. Depending on what assumptions and categorisations are taken, the projected numbers vary wildly, covering a span between zero and over seventy million speakers. The crucial point for arriving at these obviously grotesque figures does not lie in the method, but in the basic assumptions: Assuming simple \pm -dichotomies of “standard”, “nativeness” and “system” is bound to fail. Science progresses by identifying and subsequently avoiding wrong tracks. Accordingly, the purpose of this thought experiment has been to illustrate that as long as linguistics clings to imposing dichotomous categories (that, such as in the case of “standard” and “nativeness”, may originate from lay conceptions) on gradients, results will be unreliable at a minimum, random at the worst. For the second question, at least a partial answer can be formulated this way: Those speakers have more than one system. There is in fact no threshold between mono- and multilingualism in standard/non-standard contact situations (see de Bot and Jaensch 2015: 131 from a different angle): Every contact situation necessitates a basic form of multilingualism in the sense that it requires speakers to have IAV in the form of multiple grammatical systems. Five different categories with regard to what kind of variation (register or variety), optionality or passive vs. active competence the speakers might have were postulated. Four of them are empirically plausible, and they all share the notion of having to assume intra-individual systemic variation, while the fifth does not: it is the scenario of a truly monolingual speaker without any internal variation. This scenario is of a purely hypothetical nature, a theoretical construct that has no real-life counterpart. That is not to say that this theoretical notion is wrong or useless, on the contrary: The five categories outlined form steps in the change process that transfers standard varieties from L2 into L1 systems, with the idealised monolingual as a purely hypothetical endpoint of the change trajectory.

References

- AADG = Kleiner, Stefan. 2011–. *Atlas zur Aussprache des deutschen Gebrauchsstandards*. Unter Mitarbeit von Ralf Knöbl. <http://prowiki.ids-mannheim.de/bin/view/AADG/> (accessed 20 January 2021).
- Adler, Astrid. 2019. Sprachstatistik in Deutschland. *Deutsche Sprache* 19(3). 197–219.
- Ágel, Vilmos. 1999. Grammatik und Kulturgeschichte. Die raison graphique am Beispiel der Epistemik. In Andreas Gardt, Ulrike Haß-Zumkehr & Thorsten Roelcke (eds.), *Sprachgeschichte als Kulturgeschichte*, 171–223. Berlin & New York: de Gruyter.
- Ammon, Ulrich. 2000. Die Rolle des Deutschen in Europa. In Andreas Gardt (ed.), *Nation und Sprache. Die Diskussion ihres Verhältnisses in Geschichte und Gegenwart*, 471–494. Berlin & New York: de Gruyter.
- Auer, Peter. 1997. Führt Dialektabbau zur Stärkung oder Schwächung der Standardvarietät? In Klaus J. Mattheier & Edgar Radtke (eds.), *Standardisierung und Destandardisierung europäischer Nationalsprachen*, 129–161. Frankfurt am Main: Peter Lang.
- Ballmer, Thomas T. 1981. A Typology of Native Speakers. In Florian Coulmas (ed.), *A Festschrift for Native Speaker*, 51–67. The Hague: Mouton.
- Barbour, Stephen & Patrick Stevenson. 1998. *Variation im Deutschen. Soziolinguistische Perspektiven*. Berlin & New York: de Gruyter.
- Berthele, Raphael. 2008. Dialekt-Standard Situationen als embryonale Mehrsprachigkeit. Erkenntnisse zum interlingualen Potenzial des Provinzlerdaseins. In Klaus J. Mattheier & Alexandra Lenz (eds.), *Dialektsoziologie / Dialect Sociology / Sociologie du Dialecte. Sociolinguistica, Volume 22*. 87–107. Tübingen: Niemeyer.
- Bialystok, Ellen & Judith F. Kroll. 2018. Can the critical period be saved? A bilingual perspective. *Bilingualism: Language and Cognition* 21(5). 908–910.
- Birdsong, David. 1999. Introduction: why and why not of the critical period hypothesis for second language acquisition. In David Birdsong (ed.), *Second language acquisition and the Critical Period hypothesis*, 1–22. Mahwah, NJ: Lawrence Erlbaum.
- Birdsong, David & Jan Vanhove. 2016. Age of second-language acquisition: Critical periods and social concerns. In Elena Nicoladis & Simona Montanari (eds.), *Bilingualism across the lifespan: Factors moderating language proficiency*, 163–182. Berlin & Washington, DC: De Gruyter Mouton/American Psychological Association.
- Cook, Vivian James. 1991. The poverty-of-the-stimulus argument and multicompetence. *Second Language Research* 7(2). 103–117.
- de Bot, Kees. 2010. Cognitive processing in bilinguals: from static to dynamic models. In Robert B. Kaplan (ed.), *The Oxford Handbook of Applied Linguistics*, 2nd edn., 348–335. Oxford: Oxford University Press.
- de Bot, Kees & Carol Jaensch. 2015. What is special about L3 processing? *Bilingualism: Language and Cognition* 18(2). 130–144. <https://doi.org/10.1017/S1366728913000448> (accessed 20 January 2021)
- Davies, Alan. 2003. *The native speaker: Myth and reality*. Clevedon: Multilingual Matters.
- Dietrich, Rainer. 2007. *Psycholinguistik. 2. Auflage*. Stuttgart & Weimar: Metzler.
- Durrell, Martin. 1999. Standardsprache in England und Deutschland. *Zeitschrift für Germanistische Linguistik* 27(3). 285–308.

- Ender, Andrea & Irmtraud Kaiser. 2009. Zum Stellenwert von Dialekt und Standard im österreichischen und Schweizer Alltag. Ergebnisse einer Umfrage. *Zeitschrift für Germanistische Linguistik* 37(2). 266–295.
- Flège, James Emil. 2018. It's input that matters most, not age. *Bilingualism: Language and Cognition* 21(5). 919–920.
- Goldberg, Adele E. 1995. *Constructions. A Construction Grammar Approach to Argument Structure*. Chicago & London: University of Chicago Press.
- Grosjean, François. 2010. *Bilingual: Life and Reality*. Cambridge: Harvard University Press.
- Haarmann, Harald. 1993. *Die Sprachenwelt Europas. Geschichte und Zukunft der Sprachnationen zwischen Atlantik und Ural*. Frankfurt & New York: Campus Verlag.
- Hagemann, Jörg, Wolf Peter Klein & Sven Staffeldt. 2013. Pragmatischer Standard – Eine Annäherung. In Jörg Hagemann, Wolf Peter Klein & Sven Staffeldt (eds.), *Pragmatischer Standard*, 1–13. Tübingen: Stauffenburg.
- Hägi, Sara & Joachim Scharloth. 2005. Ist Standarddeutsch für Deutschschweizer eine Fremdsprache? Untersuchungen zu einem Topos des sprachreflexiven Diskurses. *Linguistik Online* 24(3). 19–47.
- Haugen, Einar. 1966. Dialect, language, nation. *American Anthropologist* 68. 922–935.
- Haugen, Einar. 1969. *The Norwegian Language in America: a Study in Bilingual Behavior*. Bloomington: Indiana University Press.
- Haznedar, Belma & Elena Gavrusseva. 2013. Childhood second language acquisition. In Julia Herschensohn & Martha Young-Scholten (eds.), *The Cambridge Handbook of Second Language Acquisition*, 338–352. Cambridge: Cambridge University Press.
- Hernández, Arturo E., Eva M. Fernández & Noemí Aznar-Besé. 2007. Bilingual sentence processing. In M. Gareth Gaskell (ed.), *The Oxford Handbook of Psycholinguistics*, 371–384. Oxford: Oxford University Press.
- Herschensohn, Julia. 2013. Age-related effects. In Julia Herschensohn & Martha Young-Scholten (eds.), *The Cambridge Handbook of Second Language Acquisition*, 317–337. Cambridge: Cambridge University Press.
- Huesmann, Anette. 1998. *Zwischen Dialekt und Standard. Empirische Untersuchung zur Soziolinguistik des Varietätenspektrums im Deutschen*. Tübingen: Niemeyer.
- Inoue, Miyako. 2006. Standardization. In Edward Keith Brown, Ronald E. Asher & James M. Y. Simpson (eds.), *Encyclopedia of Language & Linguistics. Second edition*, 121–127. Amsterdam: Elsevier.
- Kleiner, Stefan. 2014. Die Kodifikation der deutschen Standardaussprache im Spiegel der faktischen Variabilität des Gebrauchsstandards. In Albrecht Plewnia & Andreas Witt (eds.), *Sprachverfall? Dynamik – Wandel – Variation*, 273–298. Berlin & Boston: de Gruyter.
- König, Werner. 1989. *Die Aussprache des Schriftdeutschen in der Bundesrepublik Deutschland*. Ismaning: Hueber.
- König, Werner. 2000. Wenn sich Theorien ihre Wirklichkeit selbst schaffen: zu einigen Normen deutscher Aussprachewörterbücher. In Annelies Häcki Buhofer (ed.), *Vom Umgang mit sprachlicher Variation. Soziolinguistik, Dialektologie, Methoden und Wissenschaftsgeschichte*, 87–98. Tübingen & Basel: Francke.
- König, Werner. 2004. Die Aussprache des Standarddeutschen als Sprachkontaktphänomen. In Horst Haider Munske (ed.), *Deutsch im Kontakt mit germanischen Sprachen*, 175–201. Tübingen: Niemeyer.

- König, Werner. 2010. Kommunikative Reichweiten. Ein Beitrag zur perzeptiven Dialektologie am Beispiel des Films „Wer früher stirbt ist länger tot“. *Zeitschrift für Dialektologie und Linguistik* 77(1). 1–18.
- Kroll, Judith F. & Gretchen Sunderman. 2003. Cognitive Processes in Second Language Learners and Bilinguals: The Development of Lexical and Conceptual Representations. In Catherine J. Doughty & Michael H. Long (eds.), *The Handbook of Second Language Acquisition*, 104–129. Malden: Blackwell.
- Lameli, Alfred. 2004. *Standard und Substandard. Regionalismen im diachronen Längsschnitt*. Stuttgart: Steiner.
- Lenneberg, Eric H. 1967. *Biological Foundations of Language*. New York: Wiley.
- Lincoln, Peter C. 1979. Dual-lingualism: Passive bilingualism in action. *Te Reo* 22. 65–72.
- Maas, Utz. 2003. Alphabetisierung. Zur Entwicklung der schriftkulturellen Verhältnisse in bildungs- und sozialgeschichtlicher Perspektive. In Werner Besch, Anne Betten, Oskar Reichmann & Stefan Sonderegger (eds.), *Sprachgeschichte. Ein Handbuch zur Geschichte der deutschen Sprache und ihrer Erforschung. 3. Teilband*, 2403–2418. Berlin & New York: de Gruyter.
- Maitz, Péter & Stephan Elspaß. 2013. Zur Ideologie des ‚Gesprochenen Standarddeutsch‘. In Jörg Hagemann, Wolf Peter Klein & Sven Staffeldt (eds.), *Pragmatischer Standard*, 35–48. Tübingen: Stauffenburg.
- Moser, Ann-Marie. 2019. *Untersuchungen zur Negationskongruenz in den deutschen Dialekten*. Dissertation, LMU München.
- Paradis, Johanne. 2001. Do bilingual two-year-olds have separate phonological systems? *International Journal of Bilingualism* 5(1). 19–38.
- Pfenninger, Simone E. & David Singleton. 2019. A critical review of research relating to the learning, use and effects of additional and multiple languages in later life. *Language Teaching* 52. 419–449.
- Polenz, Peter von. 1999. *Deutsche Sprachgeschichte vom Spätmittelalter bis zur Gegenwart. Band 3. 19. und 20. Jahrhundert*. Berlin & New York: de Gruyter.
- Pröll, Simon. In print. Die Nativierung des Standarddeutschen. Mikrotypologische Evidenz für suprasegmentalen Wandel. *Zeitschrift für Angewandte Linguistik* 75(1).
- Pröll, Simon. submitted. Non-reducible morphological differences between written and spoken Standard German.
- Redlinger, Wendy E. & Tschang-Zin Park. 1980. Language mixing in young bilingual children. *Journal of Child Language* 7(2). 337–352.
- Romaine, Suzanne. 2011. Revitalized Languages as Invented Languages. In Michael Adams (ed.), *From Elvish to Klingon. Exploring invented languages*, 185–225. Oxford: Oxford University Press.
- Roeper, Thomas. 1999. Universal bilingualism. *Bilingualism: Language and Cognition* 2(3). 169–186.
- Røynealand, Unn. 2010. Vertical convergence of linguistic varieties in a language space. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An International Handbook of Linguistic Variation. Volume 1: Theories and Methods*, 259–274. Berlin & New York: Mouton de Gruyter.
- Sankoff, Gillian. 2013. Linguistic Outcomes of Bilingualism. In Jack K. Chambers & Natalie Schilling (eds.), *The Handbook of Language Variation and Change*. Second Edition, 501–518. Chichester: Wiley-Blackwell.

- Schmidt, Jürgen Erich & Joachim Herrgen. 2011. *Sprachdynamik*. Berlin: Erich Schmidt.
- Seiler, Guido. 2017. Wenn Dialekte Sprachen sind, dann ist Dialektkontakt Sprachkontakt: Zum „Shwitzer“ der Amischen in Adams County (Indiana, USA). *Zeitschrift für Dialektologie und Linguistik* 84(2–3). 202–231.
- Seiler, Guido & Simon Pröll. 2020. Akkommodation geostatistisch. In Helen Christen, Brigitte Ganswindt, Joachim Herrgen & Jürgen Erich Schmidt (eds.), *Regiolekt – Der neue Dialekt? Akten des 6. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD)*, 83–99. Stuttgart: Steiner.
- Sorace, Antonella. 2003. Near-Nativeness. In Catherine J. Doughty & Michael H. Long (eds.), *The Handbook of Second Language Acquisition*, 130–151. Malden: Blackwell.
- Stellmacher, Dieter. 1975. Die Kodifikation der deutschen Hochlautung. Ein Vergleich von Ergebnissen in der Vorschrift und in Realisationen bei Sprechern der deutschen Hochsprache. *Zeitschrift für Dialektologie und Linguistik* 42(1). 27–38.
- Trudgill, Peter. 1975. *Accent, dialect and the school*. London: Arnold.
- Varietengrammatik des Standarddeutschen*. 2018. *Ein Online-Nachschlagewerk. Verfasst von einem Autorenteam unter der Leitung von Christa Dürscheid, Stephan Elspaß und Arne Ziegler*. <http://www.varietengrammatik.net/> (accessed 20 January 2021).
- Vanhove, Jan. 2013. The critical period hypothesis in second language acquisition: A statistical critique and a reanalysis. *PLoS ONE* 8, e69172. <https://doi.org/10.1371/journal.pone.0069172> (accessed 20 January 2021).
- Versteegh, Kees. 1993. Esperanto as a first language: language acquisition with a restricted input. *Linguistics* 31(3). 539–555.
- Weinreich, Uriel. 1967. *Languages in contact. Findings and problems. Fifth printing*. The Hague: Mouton.
- Weiß, Helmut. 2004. A Question of Relevance. Some Remarks on Standard Languages. *Studies in Language* 28(3). 648–674.
- Weiß, Helmut. 2005. Von den vier Lebensaltern einer Standardsprache. Zur Rolle von Spracherwerb und Medialität. *Deutsche Sprache* 33(4). 289–307.

Index

- accommodation 3, 5, 12, 16, 27, 47–52, 54, 57, 62–64, 66, 67, 69, 73–77, 236, 284, 317, 384, 397
- adjectival participle 6, 243, 244, 248, 249, 264, 265, 267–273, 275–278
- age 20–21, 26, 29, 55, 88, 93, 95, 127, 128, 140, 168, 209–212, 246, 248–250, 254, 255, 259, 261, 267, 268, 272, 276, 277, 300, 301, 316, 320, 348, 349, 370, 387, 388, 390, 395
- Alemannic 87, 102, 105, 115, 118, 133, 207, 222, 225, 289, 329, 394
- allomorphy 19, 29, 225
- American 27, 32, 284, 286, 291, 386, 391
- analogical change 272, 274, 277
- animacy 187, 224
- apocope 326–329, 335–337, 340–343
- apparent-time 3, 17, 194, 210, 244, 246, 254, 256, 259, 267–269, 271, 272, 276, 277
- Atlas zur Aussprache des deutschen
Gebrauchsstandards (AADG) 128,
133–135, 149, 385, 386
- attention to speech 12, 137, 146, 147, 156,
166, 167, 316, 336, 338, 344
- audience design 12, 25, 30, 31, 35, 91, 284,
316, 317, 338, 344
- Austria 5, 6, 29, 87, 89, 90, 92, 94–105, 109,
116–118, 164, 166, 315, 320, 321, 329,
340, 342, 385, 390
- base dialect 95, 97, 104, 110, 116, 177, 179,
180–185, 200, 201
- Bavarian 87, 89, 95–98, 102, 103, 105, 106,
109, 115, 117, 118, 133, 177–179, 181–183,
186, 187, 189–201, 215, 329
- Bavarian Database of Dialects
(BayDat) 183
- Bavarian Linguistic Atlas (BSA) 177, 179–187,
190, 191, 194, 197, 198
- bilingual 31, 129, 140, 292, 392
- bilingualism 292, 392, 394, 397
- brain structure 10, 15
- case (ling.) 31, 35, 207–209, 212, 213–217,
222–227, 232–234, 251, 255, 256,
259–264, 270, 271, 274, 276, 277
- case of doubt 26, 380
- case study 6, 17, 27, 48, 119, 137, 158, 163, 320
- Castilian 52, 54
- casual style 29
- census 130, 165
- Chinese 25, 30
- clinical linguistics 37, 49
- co-occurrence restriction 3, 6, 11, 207,
208, 214
- code-switching 30–32, 36, 90, 117, 284, 394
- cognitive linguistics 22, 360, 373
- collective noun 190
- combinatory variant 19, 89
- community of practice 92
- Complex Dynamic System Theory (CDST) 15,
16, 19
- constraint-based 207–209, 211, 213, 215,
217, 219, 221, 223, 225, 227, 229, 231,
233, 235–237, 239, 241
- construct 30, 92, 93, 177, 182, 359, 366, 368,
371, 401
- constructicon 353, 355, 360
- construction grammar 4, 6, 209, 347, 348,
359, 383
- constructionalisation 4, 347, 348, 353, 356,
363, 364, 372
- conventionalisation 246, 355
- corpus linguistics 2
- critical period hypothesis 388
- Danish 28, 32
- decomposition analysis 213
- definiteness 225, 229
- diachronic change 40, 358, 372
- dialect levelling 6, 283, 285, 301
- dialect mixing 291, 294
- dialect-standard-axis 5, 87, 89, 95, 98, 104,
117, 246
- dialectality 107–110, 117, 227
- diaphasic 11, 244

<https://doi.org/10.1515/9783110743036-013>

- diastratic 97
 diglossia 129, 397
 diglossic 131, 129, 384
 diminutive 154, 189, 292, 387
 Dutch 19, 53, 208, 212, 213, 218, 219,
 237, 292

 Early New High German 33, 348
 East Central German 321
 East Franconian 183, 187, 189–191, 198, 207
 East Upper German 95, 183, 184, 223
 education 14, 21, 55, 93, 102, 127–129, 132,
 133, 136, 139, 142–144, 146, 149–151,
 155, 157, 159, 161, 163, 165–168, 248,
 254, 255, 267, 320–322, 341, 385,
 390, 391
 endoglossic 129
 entrenchment 22, 75, 355
 ergodic system 11
 exemplar 14, 25, 53, 76, 77
 exemplar theory 14, 77
 experimental 9, 12, 15–17, 50, 53, 58
 extra-linguistic 3, 18, 191, 249, 255

 Fermi problem 380, 382
 first language acquisition (FLA) 22, 36, 37,
 109, 129, 391
 forensic linguistics 36
 formal style 29, 329, 331, 340, 341, 343
 fortis 53, 192–195, 201, 386
 free variation 2, 3, 19, 27, 39, 187
 French 25, 27, 29, 30, 51, 159, 248
 frequency analysis 87, 106
 Frisian 219

 gender 20, 21, 27, 31, 35, 107, 110, 117,
 127, 128, 132, 136, 139, 142–144, 146,
 149–151, 155, 157, 163, 164, 167, 171, 187,
 201, 212, 246–248, 250–255, 264, 265,
 267, 268, 270, 271, 276, 297–299, 301,
 326, 355, 370
 generation 6, 14, 89, 102, 106, 107, 110–113,
 115, 117, 118, 178, 193, 210–212, 284,
 288, 291, 297, 299–301, 396
 generative grammar 2, 10, 238
 gradience 229, 347, 349, 356–359, 372, 374
 gradualness 16, 22, 32, 349, 355–357, 372

 grammaticalisation 277, 351, 352, 356, 359
 graphemic 33, 323, 331, 344, 352, 354
 group level 3, 4, 29, 136, 137, 141–144, 146,
 147, 150, 155–158, 161, 163, 208, 217,
 236, 238

 handwriting 30, 36, 49, 316, 321, 337
 Hessian 225
 heterogeneity 9, 10, 245, 249
 High German 101, 160, 161, 165, 287, 293,
 295, 297, 324, 341, 348, 361, 395
 historical data 1, 4, 33, 319
 historical sociolinguistics 6, 283, 284, 289,
 301, 318
 homogeneity 2, 17, 139, 157, 158, 179, 245,
 388
 hypercorrection 23, 90, 95, 101, 325, 326,
 343
 hyperdialectalism 95, 101

 idiolect 14, 158, 166, 214, 217, 221, 224, 225,
 227, 228, 232, 359
 illocutionary 369, 370
 imitation 12, 48, 50, 51, 106, 186, 209, 335
 indexical meaning 13, 20
 indexicalisation 14, 15, 20, 22, 76
 individuation 224
 infix 265, 266, 268, 270, 271, 273
 inflection 5, 32, 177–179, 181–183, 185–187,
 189, 191, 192, 194, 195, 200, 210,
 251–261, 263–265, 267–273
 intelligibility 48, 50–52, 91
 InterGramm 354
 interview 5, 25, 27, 29–31, 87, 88, 91, 94, 95,
 97–101, 107–114, 117, 127, 128, 135–139,
 167, 180, 181, 182, 184, 192, 287, 292,
 300, 336
 intra-learner 5, 19
 intra-speaker 9, 19, 25, 47, 87–90, 106, 107,
 111, 118, 128, 129, 142, 146, 147, 149,
 156, 157, 283, 301, 352, 372
 intra-textual 347–349, 352, 353, 360, 362,
 368, 370, 373
 introspection 12, 26, 384, 386, 390
 invisible hand 14
 isomorphism 394–396, 399
 Italian 225

- Kiezdeutsch 149
 Kleiner Sprachatlas der deutschen Schweiz (KSDS) 293, 294, 298
- Latin 348
 layering 16, 357, 373
 legal text 347, 348, 350–352, 360–363, 368, 369
 lenis 53, 192–195, 201, 386
 lenition 193
 letter 6, 17, 30, 36, 38, 49, 285, 315–344
 lexical 6, 21, 27, 28, 48, 49, 101, 104, 140, 182, 213, 231, 278, 283, 285, 289, 294–296, 298–301, 318, 323–325, 331, 333, 335, 340, 342, 344, 347, 349, 353–355, 360, 361, 365, 366, 368, 369, 372, 386, 387
 lexis 6, 292–294, 305, 310, 315
 linearity principle 11
 Lombard effect 27, 48
 Low German 6, 347, 348, 350, 360, 386, 395
 Luxembourgish 6, 243–245, 247–249, 251–253, 259, 261, 265–268, 272, 277
- macro level 4, 48, 88, 361
 map-task 5, 47, 55–57, 60–65, 67–69, 77
 mass noun 190
 micro level 48, 92, 96, 114, 119, 357
 Middle High German (MHG) 5, 32, 35, 87, 89, 103, 202, 324, 341
 Middle Low German (MLG) 6, 347, 348, 350, 354, 358, 360, 361, 363
 monolingualism 2, 286, 379, 398, 399
 morphology 5, 6, 11, 15, 20, 24, 48, 177–179, 183, 186, 188, 195, 198, 200, 201, 207, 208, 215–217, 225, 245, 290, 292–294, 297, 301, 308, 313, 315, 383, 385, 386
 morphophonology 177, 192, 201
 morphosyntax 12, 207, 236
 Moselle Franconian 98
 multilingualism 2, 6, 379, 392, 393–399, 401
- nativisation 379, 381, 394, 399
 Naturalness Theory 223, 234
 neurolinguistics 26, 49
 New High German (NHG) 33, 190, 191, 200, 348
- non-systematic variability 19
 NORF 102, 179, 180, 184
 NORM 2, 13, 22, 33, 35, 102 179, 180, 184
 number (ling.) 21, 177–179, 183, 186, 187, 191, 195, 197, 200, 209, 230, 251, 252, 255, 256, 258, 259, 263, 265, 270, 271, 276, 387, 396
- oddball-paradigm 26
 Old English 33
 optionality 15, 397, 399, 401
 orthoepy 384, 385, 399
 orthography 6, 53, 216, 217, 386
- paralinguistic 12
 perceptual linguistics 263
 performance error 20, 216
 performance variability 19
 phonetic drift 48
 phonetics 12, 13, 17, 24, 48, 53, 88, 105, 178, 193–195, 200, 383, 385
 phonology 11, 12, 15, 19, 20, 24, 36, 48, 88, 177–179, 192, 195, 200, 201, 284, 291–294, 296, 299, 307, 312, 383, 385, 386
 phonotactic 18, 19, 25, 52, 89
 plural marker 5, 33, 177–179, 182, 186, 187, 189, 190, 192, 194, 200
 Polish 32, 52, 74
 post-release voicing (PCR) 58, 59, 66–69, 73–75
 pragmatics 12, 20, 24, 48
 prestige 23, 112, 238, 328, 340, 353, 381
 production data 1, 5, 47, 136
 psycholinguistics 31, 48, 50, 396, 399
 punctuation 6, 26, 315, 331–333, 336, 343, 351
- random variation 19, 344
 reaction time 28
 reading task 5, 88, 101, 104, 117, 128, 131, 134, 137, 138, 144, 146, 147
 real-time 3, 17, 48, 88, 97, 165, 244, 277
 regiolect 95, 99, 208, 387, 395, 400
 Regionalsprache.de (REDE) 99

- register 11, 14, 90, 96–99, 100, 102, 108, 112, 114, 115, 318, 353, 373, 393, 394, 396–399, 402
- regression model 5, 60, 87
- relexification 299, 301
- repertoire 11, 18, 23, 36, 37, 76, 77, 87–89, 91, 92, 94, 95, 99, 106, 111, 118, 119, 208, 213, 301, 315, 318, 341, 344, 350, 351, 360, 361, 370, 395
- Rhine Franconian 149
- Russian 31, 394
- salience 73, 75–77, 384
- Sanskrit 225
- Scandinavian 219
- schematicity 355
- Scottish 30, 31
- self-correction 300
- self-paced reading 28
- semantics 15, 24, 48, 187, 190, 191, 200, 201, 218, 365
- sex 21, 88, 93, 132, 291, 300
- shibboleth 135
- short-term analysis 29
- socio-situational factor 1, 7
- sociolect 11, 14
- sociolinguistics 2, 6, 9, 11, 12, 17, 49, 88, 92, 127, 128, 157, 209, 210, 214, 237, 244, 283, 284, 289, 318, 359
- Spanish 5, 43, 47, 51, 52, 54, 73, 74, 139
- speaker design 12, 35, 316, 318, 320, 340, 344, 373
- Sprachatlas der Deutschen Schweiz (SDS) 178, 289–291, 293, 298, 301
- standardisation 6, 263, 289, 380, 383, 391
- standardness 382–387, 390, 391
- stereotype 55, 134
- stigmatisation 342
- Stochastic Optimality Theory 5, 207, 228
- style 11, 14, 20, 26, 29, 88–94, 97, 100, 128, 141, 157, 158, 166, 179, 184, 244, 278, 284, 300, 301, 316–320, 329, 331, 336, 339–341, 343, 344, 352, 353, 360, 372
- stylistic 5, 6, 9, 20, 21, 23, 88, 92, 127, 128, 133, 134, 167, 184, 188, 208, 238, 318, 341, 347, 349, 353, 357, 360, 361, 368, 369, 372–374, 386, 393
- subjunction 349, 353, 355, 358, 361, 368–370, 372
- subordination 361, 368
- subphonemic cue 47, 53, 58, 73, 74
- superlative 6, 243, 244, 248, 249, 251–262, 264, 265, 273, 276, 278
- suprasegmental 52, 386
- Swabian 183, 191, 207, 329, 387
- Swiss German 5, 127–135, 137–140, 164–166, 208, 230, 283, 285–289, 291–301
- synchronisation 236, 245, 246
- Syntactische Atlas van de Nederlandse Dialecten (SAND) 212, 353, 378, 384, 395
- Syntaktischer Atlas der deutschen Schweiz (SADS) 214
- syntax 6, 12, 18, 20, 21, 24, 48, 98, 178, 195, 200, 207, 216, 383, 386
- tense 100, 159, 290, 326, 329, 330, 359, 386
- Teuthonista 182, 183, 194
- token 13–17, 22, 25, 51, 54, 57–59, 63–66, 68, 75, 76, 87, 104, 105, 108, 135, 140, 141, 144, 149, 155, 159, 187, 215, 220, 226, 293, 294, 297, 299, 301, 305, 310, 320, 335, 354, 368
- topological analysis 218
- translation task 5, 6, 87, 95, 108–110, 112, 137, 138, 141, 142, 146, 147, 149, 154, 156, 157, 166, 167, 173, 214, 248, 249, 293, 296, 298, 300, 301
- Turkish 394
- underspecification 13
- uniformitarianism 319
- Universal Grammar 12, 13
- unrounding 324, 336, 341
- unsystematic variation 19
- Upper German dialect 5, 183, 184, 191, 207, 212, 215, 223, 329
- variability 2, 11, 13–17, 19–21, 24, 25, 28, 32, 58, 128, 133, 134, 141, 157, 158, 167, 168, 201, 207–209, 214, 217, 219–222, 228, 236–238, 358, 363, 379, 388

- variant 6, 11, 13–16, 18–23, 25, 26, 28–32, 35–37, 47, 48, 54, 69, 73, 76, 77, 87, 89, 97, 99, 104–119, 130–138, 140–158, 161, 162, 165, 173, 177, 179–183, 185–189, 195, 196, 198, 207, 208, 211–214, 216, 219, 223–229, 231, 232, 234–236, 238, 246, 247, 252–256, 261, 262, 264–274, 276–278, 284, 290, 294–300, 305, 310, 316–319, 321, 323, 326, 335, 340, 341, 344, 359, 366, 373, 384, 386, 392, 395, 396, 406
- Varietengrammatik des Standarddeutschen (VG) 406
- verbal complex 5, 207, 208, 211, 212, 214, 215, 217–221, 227, 228, 230–232, 236
- vernacular 90, 97, 104, 106, 288, 348, 350
- verticalisation 285, 288
- visual world paradigm 30
- voice onset time 51
- vowel shift 26
- word frequency 31, 51, 293
- word stress 20, 255–257, 259, 270

