Morphological Variation

Theoretical and empirical perspectives

Edited by

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Morphological Variation

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Morphological Variation. Theoretical and empirical perspectives
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Introduction

On the benefits of analyzing morphological variation by linking theory and empirical evidence

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1. Preliminaries

This book brings together papers which link empirical in-depth analyses of morphological variation with a range of theoretical questions (e.g. the status of morphomes, form function-mismatches, etc.). Neither for variationist morphology nor for morphological theorizing can we say that this is a long-standing tradition; this is a pity because variationist morphology and morphological theorizing can gain a lot by relating to each other. As the workshop on which this volume is based (*Morphological Variation – linking theory and empirical evidence*, DGfS Saarbrücken, March 2017) was open to theorizing of any persuasion, the volume connects a wide array of theoretical approaches.

Before we begin, a few words are in place on what we understand by morphological variation and morphological theorizing: Morphological variation in this book is defined as variation considering formal or functional features within word structure. More precisely, the contributions to our volume concentrate on variation in inflection; this focus can also be taken as a hint that variation in word formation is currently a severely under-researched topic.[1] In the present volume, inflectional variation occurs in different guises and domains: within a single cell of a paradigm and across paradigms, within one spatially defined variety and across varieties, synchronically and diachronically, within and across speakers, etc. Many

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1. There are several reasons for this lacuna, the main one being that theorizing and empirical research in word formation rely to a high extent on sufficiently large corpora, which are largely missing for dialects. Apart from that, word formation has been addressed only marginally and on a purely diatopic basis in dialect atlases (e.g. diminutive forms), i.e. there is no satisfactory database available when it comes to the areal variation of functions of word formation patterns.

of the papers offer a combined perspective on several of these domains. Although morphological variation interacts with other linguistic levels such as phonology, semantics or syntax, as well as with social factors (cf. Rabanus 2010: 809–810), it can also be a time-stable, autonomous phenomenon which especially justifies dedicated consideration.

One further clarification on the notion of (morphological) theory and theorizing: We take it as having a wider scope than simply 'complex of falsifiable hypotheses'; it also incorporates the process of coming up with a structured diagnosis of the relevant facts (i.e. *modelling*) – or in the words of Enger (this volume):

> We do not only have theories and hypotheses in science, we also have models and concepts, and the former two belong at a different level from the latter two, at least according to Popper (1972: 19).

Thus, morphological theorizing has a diagnostic as well as a prognostic facet. Even though the prognostic facet usually plays a more prominent role in the general understanding of what a theory should be, the importance of the diagnostic facet (models, concepts) must not be neglected: What is the most appropriate abstract model for the data at hand (e.g. *realizational* or *incremental*, cf. Ackerman & Stump 2004; Stewart 2015), and to which abstract concept can the data at hand be assigned (e.g. *morphome*, cf. Aronoff 1994)? – This is the motivation for the present volume. The diagnostic facet is indispensable when it comes to formulating well-founded hypotheses and prognoses. Moreover, theorizing can include the question of what kind of data are valid in order to achieve reliable generalizations. Fine-grained data from spoken dialect varieties lead to different and maybe more accurate generalizations from a cross-linguistic point of view than evidence based on written standardized languages alone (e.g. Weiß 2001).

Last but not least, theorizing has a sociological component to it in that it can lead to detachment or even the isolation of different theoretical persuasions (i.e. "research programs" in the sense of Lakatos 1978). In the face of this, we are especially glad to connect quite different approaches from *Canonical Typology* over *Paradigm Function Morphology* (PFM) to *Optimality Theory* (OT), and perspectives from within a selected theory (theory-internal) as well as perspectives comparing and evaluating theoretical approaches (theory-assessing perspectives).

In the remainder of this introduction, we demonstrate why morphological variation is a research field in need of attention (Section 2), why this is a chance to link empirical research to morphological theorizing and why both research fields can greatly benefit from opening up to each other (Section 3). Then, we briefly introduce the main concern of the papers included in this volume, their empirical basis and the theoretical frameworks they are couched in (Section 4). Finally, we

take on an overarching perspective across the papers and their findings and discuss what we can learn from them in a principled way both theoretically and empirically (Section 5).

2.   A short overview on the research tradition

Up to now, morphology has not been in the center of dialectological (or variationist linguistic) interest, which is not to say that this linguistic domain is altogether *terra ignota*.[2] Descriptive works, such as large-scale atlases, first and foremost Georg Wenker's *Sprachatlas des Deutschen Reiches* (Wenker 1888–1923; Wenker 2013–2014), and many of its regional follow-ups, e.g. the *Sprachatlas der Deutschen Schweiz* [SDS] (Hotzenköcherle & Baumgartner 1962–1997), the *Sprachatlas von Bayerisch-Schwaben* [SBS] (König 1997–2009) or the *Mittelrheinischer Sprachatlas* [MRhSA] (Bellmann et al. 1994–2002), to mention just a few examples, do contain information on morphological variables. Some are even dedicated to morphology (e.g. the *Morfologische Atlas van de Nederlandse Dialekten* [MAND], cf. de Schutter et al. 2005–2008), but typically they focus on how a particular word form or group of word forms (albeit morphologically segmented) is pronounced at a given location.[3] Although many useful and interesting observations can be drawn from these sources, linguistic atlases don't provide sufficient means for reconstructing full morphological paradigms and systems. Other traditional genres such as dialect grammars – either focusing on single locations or areas of varying sizes, i.e. *Landschaftsgrammatiken* "territorial grammars" (cf. Schmidt & Herrgen 2011: 88–95, 108–112 on these genres) – fare better in this respect. They usually contain a more or less detailed description of inflectional classes, inspired by the Young Grammarian tradition, from which a great amount of information can be distilled. The most impressive example, Viktor Schirmunski's *Deutsche Mundartkunde* (1962 [2010]), offers a still unsurpassed synthesis of morphological phenomena in their spatial dimension. However, all these descriptions remain very well within the mental theatre of 19th century linguistics with its inherently diachronic and descriptive orientation, meaning that morphological variables are

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2.   Since modern dialectology has, to a considerable degree, been developed in the German research tradition, our exposition suffers from a certain bias in this direction. Where possible, we try to give reference to work outside this realm.

3.   This is not to say that linguistic atlases didn't spark important and theoretically well-informed work. Two examples in the domain of (verbal) syncretism would be Aalberse (2007) on Dutch (based on MAND data) and Rabanus (2008) on German (drawing on Wenker's *Sprachatlas* and several regional atlases).

defined as regional differences from an idealized (if not to say: fictitious) Middle High German reference system.

It took some time for dialectology to incorporate insights and concepts from modern structural linguistics and put them to use beyond questions of how certain language areas are shaped by historical or socio-cultural factors (cf. Niebaum & Macha 2014: Chapter 3 for a short overview). It is in his seminal paper *Is a structural dialectology possible?* that Uriel Weinreich stresses the importance of "the study of partial similarities and differences between systems and of the structural consequences thereof" (Weinreich 1954: 390). A fine example of an application of this new kind of thought in phonology is Moulton's (1960, 1961) work on Eastern Swiss vowel systems ("vowel split"), which owes a lot to structuralist concepts like "functional load" or "gaps" (cf. Martinet 1955). An early, albeit singular, counterpart in the domain of morphosyntax would be Shrier's (1965) work on case in German dialects: On the basis of a convenience sample of dialect grammars she shows that while High German dialects typically feature a three-part distinction (with few exceptions, the genitive has disappeared), most parts of Low German only preserve a twofold-distinction between a nominative and an single objective case ("obliquus"). These areal differences, however, are dependent on the respective category, meaning that pronouns preserve more distinctions than e.g. nouns or adjectives. Orthogonally, regional types of syncretism can also be identified, with a stronger tendency of nominative/accusative merger in the western part of High German (cf. the indefinite article $an_\text{NOM/ACC}$ 'a' in Alemannic) as opposed to merger of dative/accusative in the East (cf. Bavarian $eam_\text{DAT/ACC}$ 'him' [stressed]). Thus, there is a clear distinction between "case" as a systemic notion (which can be detected and analyzed with regard to extra-morphological factors like diathesis or government) and the way it is morphologically expressed.[4] What is still missing in this descriptive tradition, however, is linking areal patterns to theoretical notions (such as e.g. animacy and differential object marking) or asking what happens in dialect contact with speakers of different case systems.

While variation in syntax has been receiving new impulses from major fields in modern linguistics, in particular generative grammar and typology, ever since the late 1990s and early 2000s (cf. Kortmann 2004, 2010; Weiß 2004; Abraham 2006; Dufter et al. 2009; de Vogelaer & Seiler 2012; Lenz, Ahlers & Werner 2015, etc.), morphology still lags behind.[5] Quite ironically, it would be much more justified to

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4.   Redrawn and colorized versions of Shrier's (1965) original maps can be found in Rowley (2004) and König (2015).

5.   This diagnosis certainly holds for German dialects. In Romance linguistics, by contrast, investigating dialect morphology from a theoretically informed perspective is quite a lively and buzzing field (e.g. Maiden 2005; Loporcaro 2017).

reserve the famous (and somewhat misguided) epithet "poor cousin of dialectology" ("Stiefkind der Mundartforschung", Schwarz 1950: 118) for this grammatical domain instead of syntax. However, there is some indication that the study of morphological variation, which constitutes a small yet lively segment of current research (cf. the recent overviews by Schmidt et al. to appear and Rabanus to appear), is gaining ground and might very well become the new "poster boy" (or girl, for that matter) of dialectology and grammatical theory. A small, but hopefully significant step in this direction is taken by the contributions to the present volume.

3.   Morphological variation and its importance for linguistic theory

3.1   Another kind of morphological naturalness

What makes dialects and other spoken varieties interesting for grammatical theory? Firstly, they are in some sense "more natural" (Weiß 2001) and thus reflect the interplay of grammatical forces much more directly than standard (i.e. codified, written) varieties, which can show unnatural or idiosyncratic patterns due to dialect leveling or prescriptive influences during their standardization process.[6] Note also that the spoken modality per se offers an intriguing vein for processing-based[7] or, more general, usage-based accounts of the shape and function of linguistic structures (see Dubenion-Smith 2010 and Abraham 2013 for instructive case studies that give due consideration to the formal side). Secondly, the areal dimension can work as a filter for identifying fine-grained grammatical contrasts (*microparameters*, cf. Kayne 1996): Each local (or regional) variety constitutes a unique system with certain properties that need to be accounted for by the interaction of specific grammatical principles with more general cognitive mechanisms. By comparing varieties from a micro-typological perspective, regularities and restrictions of variation can be observed and compared to parameters developed in generative grammar or typology (see e.g. Abraham 2012). Nice examples of this kind of approach from the domain of syntax would be Bresnan et al. (2007) on agreement systems (on the basis of the *Survey of English Dialects* [SED]), Seiler (2004) on verb clusters in Swiss German dialects, and Herrgen (2005) on *t*-deletion in word-final consonant clusters. With particular reference to morphology, this boils down to accounting for "areal/regional differences that can be observed either in the respective feature

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6.   A related question is what is "normal" or "natural" within standard languages.

7.   Abraham (2006) argues that several phenomena of spoken language (in particular from the domain of syntax) are motivated much more by parsing-restrictions than in standard languages (see also the overview of relevant phenomena on p. 261–263).

values a morphological category can have or the way these features are expressed (i.e. morphological exponence)" (Rabanus 2010: 806–807).

Thirdly, and from a more diachronic angle, dialects offer an exciting perspective on the spatial diffusion of linguistic innovations (see e.g. Girnth 2000; Nerbonne 2010) and their impact on the different grammatical subsystems. Well-known examples would be the morphological re-wiring of the *i-umlaut* (cf. Nübling 2009, 2013) or the functional expansion of analytic perfect forms that leads to an areally skewed competition (and replacement) with the older synthetic preterite forms (see Fischer 2018 and this volume).

Morphological variation in space can substantiate hypotheses on developments in time. Implicational hierarchies of morphological features in neighboring dialects can mirror steps of leveling, spread or grammaticalization processes, e.g. the *geben*-passive (cf. Bellmann 1998; Lenz 2007) or the *am*-progressive (Ramelli 2016).

3.2   Morphological variation and its importance for linguistic theory

Let us now reflect more specifically on the role of variation in current morphological theorizing. Naturally, it is impossible to cast light on all connections, so we'll make do with some broader observations. From a (micro-)typological perspective, there are several targets of comparison between dialects themselves on the one hand and dialects and the respective standard languages on the other hand (see Rabanus to appear: Section 2.1–2.5): This includes, for instance, differences in relevance of morphological categories and their formal expression (cf. Bybee 1985; Birkenes 2018), morphological features and their exponence (additive, fusional or analytic) or the general relationship between form and function (e.g. allomorphy, overabundance, syncretism). A promising tool for drawing such a comparison is *Canonical Typology* (e.g. Brown & Chumakina 2013; Corbett 2007, 2015), which allows defining a language-independent standard of comparison (i.e. the *canon*) and exploring deviations in terms of possible feature combinations and their interactions.

An important research question that is addressed by several papers in this volume is how independent morphology actually is (*morphomics*, cf. Aronoff 1994; Maiden 2005) or, conversely, how the interaction between morphology and other modules of the grammar functions (in particular phonology, syntax, and semantics). Concrete demonstrations are the papers by Enger (on morphomes in Scandinavian), Baechler & Pröll, Ellsässer (on interactions between morphology and syntax), Hasse (on phonology vs. syntax) and Weiß & Dirani (on the interplay between information structure, syntax, and morphology).

It has been shown, for instance, that phonological changes can lead to structural configurations that can resurface as morphological distinctions (*morphologization*, cf. Wurzel 1982; Ronneberger-Sibold 1990; Seiler 2008), thus highlighting

the "duality of patterning" nature of human languages (Hockett 1960), i.e. by themselves meaningless (but diacritic) phonemic oppositions becoming meaningful morphological contrasts. A famous example for this kind of development is subtractive case/number morphology in a wide range of German dialects (Birkenes 2014), as illustrated by the examples in (1) from selected varieties. Several other cases of non-concatenative plural formation are mentioned in Seiler (2008: 163).

(1) Subtractive case/number marking (Birkenes 2014: 31):
  a. hunt$_{\text{NOM/ACC.SG}}$ – hun$_{\text{DAT.SG}}$ 'dog' – hun$_{\text{PL}}$ 'dogs'   (Low German)
  b. dâχ$_{\text{NOM/ACC.SG}}$ – d·ō·$_{\text{DAT.SG}}$ 'day' – d·ē·$_{\text{PL}}$ 'days'   (Central German)
  c. gāng$_{\text{NOM/ACC.SG}}$ – gaŋ$_{\text{DAT.SG}}$ 'hallway' – gäŋ$_{\text{PL}}$ 'hallways'   (Upper German)

This phenomenon proved to be a tough nut for *Natural Morphology* and its concept of "constructional iconism" which predicts that plurality as a semantic notion should be accompanied by additive formal means.[8] Subtraction is a "collateral damage" that was caused by different phonological processes, namely (a) consonantal weakening (e.g. assimilation), (b) change in quantity (degemination in the context of consonant clusters), and (c) vocalic weakening processes, most notably ə-apocope.[9] An example would be *kinde* 'child' (SG) – *kin* (PL) 'children', the latter form derived from *kində > kinːə > kinə > kin*. In areal terms, there is a strikingly matching distribution of substraction, consonant assimilation, and apocope – concretely, this phenomenon is mainly attested in Central and Low German (with certain extensions into Western Upper German) (cf. Birkenes 2014: 31, 97; 2018). Birkenes proposes an analysis couched in Bybee's (1985, 1995) *Network Model*, which can be regarded as a word-based approach ("word and paradigm" in the sense of Hockett 1954) where frequency effects play a crucial role: High token frequency of a lexeme is accompanied by a high degree of fusion (up to suppletion). Subtractive plurals that resist leveling are at least partially very token-frequent, yet in terms of type frequency, they are unproductive and cluster with phonological similarities. In this model, morphological processes are nothing more than lexical representations that are generalized (N.B. the well-known slogan "regularities instead of rules"). Lexical representations are interconnected, and these connections consist of (partially) similar phonological and semantic features which form schemata (see also Köpcke 1988).

Interface effects with syntax can be observed in the domain of non-finite morphology, where dialects show a rich inventory of distinctions and phenomena,

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8. In more elaborated conceptions of *Naturalness Theory*, subtractive forms are regarded as the product of a "naturalness conflict", meaning that phonological naturalness (simplification of consonant clusters, apocope) bleeds morphological naturalness (see the discussion in Birkenes 2011: 141–142).

9. Dressler (2000: 585) calls this development a "constellation of historical accidents".

ranging from the famous "substitute infinitive" construction to truncated participles ("supines") that can emerge in complex perfect constructions (Höhle 2006; Schallert 2014). What is more, morphological markers can be dislocated, thus appearing at "wrong" or unexpected places in the verbal complex (Höhle 2006; Salzmann 2019; Schallert to appear). A relevant example can be seen in (2), stemming from an East Central German dialect and displaying the following peculiarities: In this variety, *werd-* 'become' normally selects a so-called gerundial form of the infinitive (suffixed by *-e(n)*), which goes back to an inflected form of the infinitive in the OHG/MHG era. In cases where the dependent of this verb itself embeds another verb its expected form is replaced by the special substitute form *müd* 'must'.

(2)   mə wæn müd   glün   (Kleinschmalkalden, Thuringia)
      we   will   must.SUP sue
      "we probably have to go to court" (Dellit 1913; quoted after Höhle 2006: 66)

The observation is that even though the gerundial form required by *werd-* is not realized by *müss-*, it appears on its immediate dependent, *glün* 'sue' (as shown by the suffix *-n* instead of the bare infinitive, which shows no suffix in this dialect). Thus, morphological selection requirements are passed down to the next verb, respectively.[10] Analyses of these phenomena resort to mechanisms like interaction between morphological and syntactic constraints in an optimality-theoretic setting (Schmid 2005; Vogel 2009; Schallert 2014) or post-syntactic processes like *local dislocation* in the framework of *Distributed Morphology* (Embick & Noyer 2001; Salzmann 2019).

3.3   Variation and morphological theory

Despite the ancillary role it plays in many modern linguistic theories,[11] morphology has become a solid enterprise with an array of approaches (see e.g. the nice overview by Stewart 2015). Focusing on inflectional morphology, to which the

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10. This phenomenon can also occur with finite morphology, famous examples coming from Swabian (e.g. Steil 1989 and references quoted therein) or East Franconian (Heyse et al. 2007: 439). See Schallert (2014: 192) and Salzmann (2019: 45–46) for some discussion.

11. *Generative Grammar* has often been criticized for its "syntacto-centrism", i.e. regarding syntax as the key component of grammar that mediates between sounds and meaning, thus downplaying the role of other grammatical modules, first and foremost morphology, which ceases to exist as a distinct level of representation. As well as this point is taken, we also believe that holistic theories like *Construction Grammar* don't fare very well in this regard. Its strength lies in modelling schematic structures with different degrees of conventionalization. In assuming no principled distinction between morphological and syntactic constructions, syntax-sensitive morphological alternations such as supine forms escape the attention of *Construction Morphology*.

contributions in this volume are restricted, typical division lines run along the following questions (without claiming completeness) (see also Hockett 1954; Stump 2001: Chapter 1; Stewart 2015: Chapter 1):

–   What is the division of labor between morphology and lexicon?
–   Are morphological rules generative or declarative in nature?
–   What is the basic unit of morphological theory (morphemes vs. words)?
–   At which level(s) does morphology interface with other modules of the grammar (e.g. paradigms)?
–   What is the relationship between form and function (cf. Bybee 1985; Newmeyer 1998)?

A small segment of this spectrum of theoretical possibilities is reflected by the contributions to this volume, yet with a new angle. They focus on the fundamental question of dealing with morphological variation. This means they take issue with abstractions like Chomsky's (1965: 3) "ideal speaker-listener, in a completely homogeneous speech-community", as necessary and useful as they might be for some purposes. Bülow and colleagues (this volume), for instance, show that variation on the level of the individual does not automatically match up with variation on the group level, thus highlighting the need for studies on (morphological) variation with different degrees of granularity.

4.   The contributions to the present volume

While part of the papers included in this volume take a data-driven perspective and relate their analysis to theoretical approaches in a second step, other papers pursue a theory-driven perspective, starting from theoretical notions and applying them to dialectal or historical data. All contributions draw their generalizations from a solid empirical basis with a high granularity. Focusing on morphological variation in dialects or historical varieties of a single language, namely German (with several overlaps to other Germanic languages), yet with a high empirical resolution and considerable thematic breadth, they circle around three main issues:

1.   Several papers start out from a central morphological phenomenon or diagnostic theoretical concept (e.g. morphome, allomorphy) and explore their empirical dimension.
2.   Many papers focus on the interaction between morphology and other grammatical subsystems (syntax, phonology, information structure) when it comes to explaining morphological variation, but also on phenomena best explained by morphology itself (Aronoff 1994).

3.   Others discuss how the dynamics of morphological variation can be success-fully modelled, i.e. (short-time) diachrony and the role of macro- and microvar-iation, including the dimension of a single speaker/hearer (intra-individual variation or "idiolectal variability" in the sense of Cornips 2009).

In the following, we briefly introduce all papers. Drawing on data from Modern German (also in its older stages) and its West Germanic "cousins" Dutch and English, **Tanja Ackermann**'s paper "Possessive *-s* in German: Development, vari-ation and theoretical status" deals with a somewhat strange phenomenon of an in-flectional affix (i.e. the strong genitive morpheme *-s*) turning into a homophonous possessive marker in the onymic domain, which appears to be less tightly bound. Diachronically, this process can be characterized as an instance of *deflexion*, affect-ing both the paradigmatic and the syntagmatic dimension and leading to a high degree of synchronic variation. Paradigmatic deflexion is displayed by the spread of *-s* from strong masculine nouns to other declension classes and concomitant reduction of allomorphy (e.g. *Anne-n > Anne-ns > Anne-s* 'Ann's'), thus leading to a "superstable marker" (Wurzel 1987). A typical sign of syntagmatic deflex-ion is the loss of inflectional marking on the (proper) name (e.g. *die Mutter des großen Alexanders > die Mutter des großen Alexander* 'great Alexander's mother'). Presently, this leads to further morphosyntactic complications, for instance cases of "group inflection" where *-s* has scope over both conjuncts in coordinations (*Antje und Olivers Einleitung* 'Antje and Oliver's introduction'). In comparison to its rela-tives, German is still more conservative than English in that possessive *-s* is mainly restricted to the proprial domain, while it is roughly on par with Dutch (albeit some idiosyncratic differences in the syntagmatic domain). Carefully assessing the status of *-s* in Modern German with different diagnostics (following Zwicky & Pullum 1983, with some additions) leads Ackermann to the conclusion that this element combines properties of an affix proper with those of a special clitic. Because such categorial fuzziness poses a challenge to morpheme-based approaches, she argues that a word-based analysis couched in *Construction Morphology* (Booij 2010) is more appropriate on the synchronic level. Conversely, a morpheme-based perspec-tive, as standardly assumed in the literature on degrammaticalization (cf. Norde 2011), has certain advantages when it comes to understanding the short-term dia-chronic developments since they are clearly counter-directional.

In their paper "Analyzing language change through a formalist framework", **Raffaela Baechler** and **Simon Pröll** test what is to gain from applying a single synchronic model of inflectional paradigm structure, namely Stump's (2001, 2016) realizational approach of *Paradigm Function Morphology*, to diachronic and vari-ational data. Case marking in two isolated and in several respects archaic varieties of Germanic languages – the Elvdal dialect of Swedish and the Visperterminen

dialect of South Alemannic – is used as an empirical test case with data from dialect grammars. By splitting paradigmatic information into three layers, as is constitutive for a PFM approach, i.e. *content paradigm*, *form paradigm*, and *realized paradigm*, they can analyze each layer separately and then relate the layers to each other. In this way, Baechler and Pröll achieve a fine-grained descriptive picture of the changes in the case paradigm, carving out interactions of grammatical subsystems: Change in the form paradigm is scrutinized for interactions with phonological change, change in the content paradigm with changes on the syntactic level, and changes in the realized paradigm are discussed as changes of "morphology by itself". A common factor in both varieties is that the content distinction between singular and plural is strengthened by leveling of case forms. From a syntagmatic perspective, the authors show that in Visperterminen, syncretism between nominative and accusative is not compensated for, whereas dative is always distinguished on the NP level.

What links are there between variation on the intra-individual level ("idiolectal variability" in the above sense) and (short-term) diachronic change? This is the basic question of the paper "Variation and change of plural verbs in Salzburg's base dialects" by **Lars Bülow**, **Hannes Scheutz**, and **Dominik Wallner**. Tracing back the respective developments over a time span of about 100 years, they take a closer look at verbal plural formation in the Central and South Bavarian dialects (including transitional zones) of the Austrian province of Salzburg. Combining two real-time studies and an apparent-time study, they demonstrate that there is a general development from a three-form plural to a two-form plural (e.g. *mia keem-an*$_{1SG}$ 'we come' / *es kem-dds*$_{2SG}$ 'you come' / *se keem-and*$_{3PL}$ 'they come' > *mia keem-an / es kem-dds / se keem-an*). Remarkably, this development manifests itself not only on the level of morphosyntactic features but it can also have an impact on the formal exponents involved (cf. Rabanus' 2005 distinction between "morphic" and "morphemic change"), leading to a range of different subtypes within the two plural formation systems. In general terms, however, this process is non-ergodic in the sense that intra-individual variations don't map to inter-individual variation as a whole. Thus, group studies (the most famous example being apparent-time studies, cf. Labov 1966) need to be complemented by time series analyses of individual speakers for gaining a fuller picture of language dynamics. A promising approach for integrating such a perspective into a general theory of language change explored in the contribution by Bülow and colleagues is *Complex Dynamic Systems Theory* (CDST) (van Geert 2011, etc.).

On the basis of a corpus of transcribed audio-recordings (compiled and edited by Ruoff 1984) **Sophie Ellsäßer**'s article "Content, Form and Realizations of Upper German Case Marking: Issues in Modelling Corpus-based Data" pursues a data-driven perspective on modelling morphological variation in the domain of declension paradigms. Depending on the syntactic category in question, case marking

in German (dialects) is characterized by a coexistence of additive and modulative strategies of exponence, with e.g. adjectives leaning towards the first-mentioned strategy while pronouns show a high degree of suppletion. Due to its phonological resolution, the *Ruoff* corpus shows a high degree of variation and thus can be seen as an appealing testing ground for theories of inflectional morphology. Ellsäßer relates her data to two theoretical approaches. She takes *Canonical Typology* (Corbett 2007; Brown & Chumakina 2013) as a benchmark for describing the different case marking patterns encountered in her data and assesses how strongly they deviate from what would be expected in a canonical paradigm. The analysis itself is carried out using *Paradigm Function Morphology* (Stump 2016) since this formal framework offers the different layers of abstraction needed for a phenomenon like case. However, despite its flexibility in dealing with a variety of form-function mismatches, PFM is confronted with different challenges posed by the Upper German data on case marking patterns. If, for instance, full or partial suppletion is modelled solely via mappings between form paradigm and realized paradigm (as proposed by Baechler 2017), this leads to a proliferation of realization rules (RRs). Other complications arise by the different types of syncretism encountered in the data (mainly of the directional and the morphomic type). Problems like these need to be addressed in further developments of this model.

Hans-Olav Enger's paper "Thoughts on morphemes, on a Scandinavian background" is a plea for the morpheme as a cognitively real and diagnostically useful theoretical concept in morphology. Morphomic patterns are paradigmatic patterns that are not or not fully externally motivated by phonology, semantics or syntax such as inflectional classes and other mismatches of form and function. His argumentation is based on the one hand on empirical arguments developed in ten case studies of morphological variation and change in varieties of Norwegian and Swedish that result in morphomic patterns. On the other hand, Enger refutes on a meta-theoretical level challenges such as the claim that morphemes fail to be falsifiable by showing that they are diagnostic theoretical concepts on a categorial level and thus differ from predictive theoretical hypotheses. Put more generally, the question whether morphology is a grammatical level in its own right is at stake: If we accept that the morpheme is a notion that adequately describes empirically real phenomena (morphomic patterns), we accept morphological autonomy in the sense of Aronoff (1994). En route, Enger contributes to sharpening the concept of morpheme by addressing problems that occur in his case studies, especially gradual motivation.

Hanna Fischer shows in her paper "How to get lost. The *Präteritumschwund* in German dialects" that the areal morphological variation of preterite loss in German dialects, more precisely the hierarchy of verbs affected by the loss, is a key to understanding the diachronic succession and the conditioning factors of this

process. By compiling a sample of dialect grammars and systematically comparing the verbs that yielded or resisted the loss, she identifies and corroborates several conditioning factors in- and outside of morphology proper: High token frequency is the strongest correlate of preterite resistance, but it interacts with criteria such as semantics (lexical aspect) and irregularity of inflectional class (strong and preterite-present vs. weak). Moreover, syntactic and information structural features such as transitivity, economy and processability in verbal framing play an important role (cf. Sieberg 1984; Abraham & Conradie 2001). By relating the areal distribution to the findings on perfect expansion in diachrony (e.g. Oubouzar 1974; Dentler 1997; Leiss 1992; Zeman 2010), Fischer develops a possible generalization for the order in which verbs lose a synthetically expressed morphological category feature and replace it with a periphrastic construction.

Investigating the conditioning factors of variation in the indefinite article, more precisely, the dative singular slot, is the main objective of **Anja Hasse**'s paper "The interaction of phonological and morphological variation in Zurich German". Her empirical basis is a corpus of Zurich German consisting of narrative and dialogue data; as a descriptive framework, she chooses *Canonical Typology*. As already mentioned, this descriptive theoretical framework systematizes irregular morphological phenomena and contributes to sharpening concepts of irregular features that are comparable across different languages and varieties. The yardstick for irregularity is a canonical definition, a purely theoretical instrument to which empirical data is related in a second step. Hasse focusses on a specific phenomenon of canonical irregularity, i.e. the notion of *overabundance* (Thornton 2012). Overabundance is defined as a deviation from the canonical paradigm of "one function: one form" in which two synonymous forms fill one and the same paradigm cell (thus being *cell-mates*) without semantic, morphological or syntactic conditioning and without differences in frequency. Hasse tests whether the variation in the dative singular slot in Zurich German is a relevant case of overabundance. She finds that overabundance closely interacts with another phenomenon, namely *shape conditioning*, which is not yet well-defined in terms of *Canonical Typology* but resembles phonological conditioning. Together, the two types of conditioning constitute a case of higher order exceptionality in the sense of Corbett (2011). In theoretical terms, Hasse contributes with her analysis to delineating the two concepts shape conditioning and overabundance.

In her contribution "Negative Concord in Alemannic: An OT-approach at the syntax-morphology interface", **Ann-Marie Moser** deals with negation patterns in different Alemannic dialects (spoken mainly in the South-Western part of the German-speaking area). By drawing on different sources, in particular corpus data (e.g. *Zwirner* audio-recordings) as well as questionnaire studies conducted in the context of recent projects like the *Syntaktische Atlas der Deutschen Schweiz* [SADS]

or *Syntax des Alemannischen* [SynAlm], and cross-referencing them she is able to reconstruct four different negation systems which she interprets as outputs of the respective grammars with certain formal properties ("partial grammars"), i.e. Grammar 1 (obligatory *N-spread*), Grammar 2 (optional *N-doubling*), Grammar 3 (obligatory *N-spread*, optional *N-doubling*), Grammar 4 (no *negative concord*). Drawing on the extensive literature on double negation patterns, Moser shows that current approaches are not fit to accommodate the patterns found in Alemannic (a situation which is also characteristic of other German dialects, e.g. Hessian). Against this background, she uses as input the approach by Haegeman & Lohndahl (2010) that provides a detailed analysis of particular negative markers (e.g. N-indefinites like *niema* 'nobody', *nicks* 'nothing', *niana* 'nowhere', etc.) in terms of feature decomposition. The high amount of variation is captured by an OT approach with several, yet empirically well-founded constraints (and rerankings thereof), among them MaxNeg (favoring indefinites in the scope of negation to be marked accordingly) or *Neg (a general markedness restriction on negation in the output). Most interestingly, for our purposes, is the idea that double negation structures are distributed between morphology and syntax, a strategy that has proven useful for other phenomena like e.g. substitute infinitives ("infinitivus pro participio") in West Germanic languages like German or Dutch. The standard analysis by Schmid (2005) crucially relies on two competing constraints, i.e. Morph (morphological selectional properties have to be respected) and *PastP/+Inf (a participial verb form must not be a sister of a VP whose head is an infinitive). Keeping with the idea put forward by e.g. Weiß (2002) or Penka (2011) that N-indefinites are not negative in semantic terms but can be considered as "allomorphs" of their positive counterparts, Moser opts for treating sentential negation as the default whereas N-indefinites constitute a marked negation strategy. This has the consequence that expressing negation by syntactic means is favored over expressing it by morphological means, as it were. From a micro-typological perspective, it is interesting to note that many Alemannic varieties employ a negation pattern which is quite rare, i.e. exclusive use of negative spread; the same seems to apply for Hessian dialects (cf. Weiß 2017).

   Tabea Reiner's contribution "Variation in non-finiteness and temporality from a Canonical perspective" circles around a grammatical "phantom", so to speak: Non-finite clauses featuring (temporal) *werden* 'become' are almost absent even from bigger corpora of Modern German, nonetheless different instances of this construction are judged acceptable by a non-negligible number of speakers. Rather than being a "grammatical illusion" (Haider 2011), this state of affairs can be interpreted as the effect of an ongoing extension of this auxiliary to the non-finite domain, after the model of *haben* 'have' or *sein* 'be' (e.g. *ohne das Buch vorher gelesen zu haben* 'without having read the book'). Taking these findings as vantage point,

Reiner addresses the more general question of what constitutes typical non-finite structures. Quite naturally, *Canonical Typology* (Corbett 2007; Brown et al. 2013) lends itself as a frame of reference for tackling this problem, even though it has proven to be much harder to define a canonical ideal for complex or "compound" features like (non)finiteness. Drawing on work by Nikolaeva (2013) in this direction and taking the subcriteria of temporal anchoring and assertivity as basis, Reiner shows that distinct temporal reference with respect to the matrix clause in both finite and non-finite clauses need not necessarily conflict with the assumption that (short-term) diachronic change always proceeds from the less-canonical to the more canonical (cf. Corbett 2012: 199). Instead, the crucial difference can be located in whether these clause types make an assertion (or claim) about the *Topic World* or *Topic Time*, respectively (in the sense of Klein 1994).

Variation between full and reduced forms of definite articles and personal pronouns is the topic of the paper "Strong or weak? Or: how information structure governs morphosyntactic variation" by **Helmut Weiß** and **Seyna Dirani**. While the analysis of definite articles concentrates on South Hessian and is based on a corpus of dialect literature and a questionnaire, the analysis of personal pronouns, with data from dialect grammars, focusses on Bavarian. The comparison of the two lexical classes points to an information structural factor as a common denominator, i.e. identifying the referent from a set of alternatives. Articles and pronouns have in common that they occur as full forms in deictic uses and restrictive relative clauses. However, they differ in contrastive contexts (i.e. focus and topic, in the respective uses), where articles occur in reduced forms but pronouns in full forms. This ability of the article to differentiate between contrastive and other uses is modelled by assuming a split DP with a more complex syntactic structure including FocP for full articles as compared to reduced articles and pronouns. Though additional evidence is drawn from Swiss German and Frisian, the proposed generalization could be tested across further varieties as well as on pronouns and article forms within one and the same variety.

5. Lessons to be learned

In German, there is a nice and handy idiomatic expression *die Moral von der Geschichte* 'the moral of the story' for asking about the essence of a longer account. So, what can you expect, dear reader, from reading the papers included in this book? What do we gather from linking empirical analyses on morphological variation to morphological theorizing?

One thing we learn is that there are quite different ways of achieving interesting and valid generalizations. They can be reached synchronically for a single variety

before drawing on additional evidence from other varieties or languages (Weiß & Dirani; Reiner). Generalizations can be arrived at in a micro-areal-typological approach by comparing a phenomenon across varieties in space (Fischer; Moser). They can be attained diachronically by using corpus data (Ackermann) or historical and dialect grammars (Baechler & Pröll), comparing diachronies in the sense of Fleischer & Simon (2013). Generalizations can be drawn by comparing variation within speakers vs. across speakers in the most basic domain of morphological variation (Bülow et al.; Ellsäßer). Empirical databases reach from secondary data such as dialect grammars (Baechler & Pröll; Fischer) over corpus data (Ackermann; Ellsäßer) to questionnaires (Weiß & Dirani).

Secondly, those papers which analyze interactions of morphology with other domains of grammar reveal that morphological variation is very often conditioned in complex ways and closely linked to those domains. Conversely, analyses in this book also present evidence for morphological variation all by itself, i.e. without links to other modules of the grammar (e.g. Baechler & Pröll; Enger; Hasse). This is evidence for morphology being an autonomous part of grammar in its own right.

Thirdly, the papers included in this volume show different ways of linking morphological theory and empirical evidence in research on morphological variation. A common denominator of most contributions is that theoretical assumptions or models developed on the basis of languages different from German and other domains than dialectology or historical linguistics are applied to get to grips with a wide range of phenomena. This application is either affirmative, comparative or challenging. Though we want to emphasize that most papers combine these different perspectives (and are therefore mentioned several times below), the following prototypical lines of argumentation in linking theorizing to empirical analysis can be identified:

Firstly, we have theory-driven approaches of different flavors. They can be characterized by applying a theory or a combination of theoretical assumptions to empirical data and showing that this is a plausible and useful theoretical model for the data at hand (Baechler & Pröll; Moser; Weiß & Dirani). Alternatively, this demonstration can be (partially) negative, i.e. the model cannot account for all aspects of the data (Ellsäßer) and should be expanded or adapted in a way suggested by the author (Reiner). Secondly, and complementary, quite a variety of data-driven strategies can be observed. The respective papers use data with high resolution for assessing different theoretical options (Enger) or for fine-tuning the definition as well as the scope of morphological concepts like e.g. *clitic* vs. *affix* and *overabundance* vs. *shape conditioning* (Ackermann; Hasse). What is more, they regard the interactions of different conditioning factors inducing variation as motivation for a "layered", multi-causal approach (Fischer). Finally, and with regard to lesser studied phenomena, also new ("explorative") research methods

are combined with theoretical assumptions from other fields of research than morphology (Bülow et al.).

To give just a few illustrations, let us show how the two dimensions, theory and empirical data, are connected: The papers by Baechler & Pröll as well as the one by Ellsäßer use *Paradigm Function Morphology* as their theoretical approach, yet they apply it to data with different degrees of granularity: dialect grammars with a more idealized, streamlined and interpretative description of the relevant data as opposed to corpus data with first-hand information including background noise, as it were. Nonetheless, the corpus data offer stimulating insights into how well the formal apparatus of PFM and its levels of representation fare when pushed to their limits and show new veins for adapting and expanding the model.

Ann-Marie Moser offers a new perspective on the interaction between morphology and syntax in a constraint-based architecture of grammar (*Optimality Theory*). Despite their semantic complexity, different cases of negative concord can be analyzed more successfully if the division of labor is balanced towards morphology, i.e. if N-indefinites are treated as allomorphs of their positive counterparts. What is more, she demonstrates that a micro-typological investigation can add to what we seem to know on the macro-typological level: Despite the fact that dialects are, in several ways, more "natural" than standard languages, they can nonetheless show patterns that are quite rare from a typological perspective, as is the case with Alemannic displaying only negative spread but only residual negative doubling.

By adapting and fine-scaling the well-known features of Nikolaeva (2013), Tabea Reiner's paper demonstrates how more complex or composite features like "(non) finiteness" can be approached in *Canonical Typology*. From a methodological point of view, she has interesting observations to offer on cross-validating different data types (corpora vs. acceptability judgements) and using them as indication for change in progress.

Lars Bülow, Dominik Wallner and Hannes Scheutz investigate the long-standing issue of how variation on the level of the individual speaker and the (age) group level are related to each other. Their data from verbal inflectional morphology suggest that both levels are not directly connected (i.e. they are "non-ergodic", to use a metaphor from quantum mechanics). This stresses the importance of time series analyses of single speakers for analyzing morphological change. What is more, they address the question of how structural (i.e. internal) and external factors are connected.

Tanja Ackermann's paper can be taken as a demonstration that it can be quite difficult to assess the categorical status of a certain morphological exponent (*-s*). An integrated approach that combines both a (short-term) diachronic as well as a typological perspective can be very helpful along the way in that it allows to identify – and model – the exact structural changes involved.

Variation, be it in the domain of morphology or in other parts of the grammar, is an important heuristic for putting theories (with all their components) to the test. From the standpoint of other disciplines, this observation might sound somewhat trivial – after all, that's what science is all about. We must remember, though, that modern linguistics with its many connections to cognitive and social sciences is a rather young discipline still in search of the respective methodological standards. All too often, intricate and highly speculative theoretical claims are made with little or no empirical backup. However, this does not mean that the opposite strategy, i.e. believing that everything, from relevant facts to fully-blown theoretical explanations, can be drawn from data alone, is on the right track. Thus, in linking theory and empirical evidence, morphological variation can help refine theoretical notions, be a path towards better founded theoretical generalizations, provoke new, or support, elaborate and refine existing theoretical ideas. And last not least, morphological variation can be a subject of theorizing in its own right.

The findings of the contributions to this volume may be followed up and related to morphological theorizing beyond its scope – we sketch just two examples: Fischer's hierarchy of category loss would be interesting to test on similar processes in other languages (e.g. *imparfait* in French dialects) or other categories (e.g. mood in German dialects) (see e.g. Leiss 1992 for a seminal discussion of these aspects). Baechler and Pröll's observation that the leveling of case forms feeds the number distinction in Elvdal and Visperterminen is a phenomenon known as strengthening of number (Hotzenköcherle 1962) that can be related to Greenberg's *Universal 39* and Bybee's *principle of relevance* (Bybee 1994; discussed in more detail in Dammel & Gillmann 2014). Their look at the syntagmatic behavior of case inflection within the NP reveals that different cases have different status with respect to the morphological minimum (Rabanus 2008) in the NP. Dative is less likely to be subject to syncretism.

We hope to show with this volume that diverse approaches to variationist data lead to generalizations that invite further consideration. Thus, we advocate an inclusive approach with respect to different frameworks.

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References

Aalberse, Suzanne P. 2007. The typology of syncretisms and the status of feature structure. Verbal paradigms across 355 Dutch dialects. *Morphology* 17: 109–149. https://doi.org/10.1007/s11525-007-9111-0

Abraham, Werner. 2006. Dialect and typology. Where they meet – and where they don't. In *Types of Variation: Diachronic, Dialectal and Typological Interfaces* [Studies in Language Companion Series 76], Terttu Nevalainen, Juhani Klemola & Mikko Laitinen (eds), 243–267. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.76.13abr

Abraham, Werner. 2012. Philologische Dialektologie und moderne Mikrovarietätsforschung. Zum Begriff des Erklärstatus in Syn- und Diachronie. In *Wortschatz und Sprachkontakt im Kontext oberdeutscher Wörterbücher, Sprachatlanten und Sprachinseln. Werner Bauer zum 70. Geburtstag* [Beiträge zur Sprachinselforschung 21], Manfred M. Glauninger & Bettina Barabas (eds), 171–190. Wien: Praesens.

Abraham, Werner. 2013. Dialect as a spoken-only medium: What it means – and what it does not mean. In *Dialektologie in neuem Gewand. Zu Mikro-/Varietätenlinguistik, Sprachenvergleich und Universalgrammatik* [Linguistische Berichte – Sonderheft 19], Werner Abraham & Elisabeth Leiss (eds), 247–271. Hamburg: Buske.

Abraham, Werner & Conradie, Jac C. 2001. *Präteritumschwund und Diskursgrammatik*. Amsterdam: John Benjamins. https://doi.org/10.1075/z.103

Ackerman, Farell & Stump, Gregory. 2004. Paradigms and periphrastic expression: A study in realization-based lexicalism. In *Projecting Morphology*, Louisa Sadler & Andrew Spencer (eds), 111–157. Stanford CA: CSLI.

Aronoff, Mark. 1994. *Morphology by Itself*. Cambridge MA: The MIT Press.

Baechler, Raffaela. 2017. *Absolute Komplexität in der Nominalflexion: Althochdeutsch, Mittelhochdeutsch, Alemannisch und deutsche Standardsprache* [Morphological Investigations 2]. Berlin: Language Science Press.

Bellmann, Günter. 1998. Zur Passivperiphrase im Deutschen. Grammatikalisierung und Kontinuität. In *Deutsche Sprache in Raum und Zeit. Festschrift für Peter Wiesinger zum 60. Geburtstag*, Peter Ernst & Franz Patocka (eds), 241–269. Wien: Praesens.

Birkenes, Magnus. 2011. Subtraktive Nominalmorphologie im Westmitteldeutschen. *Zeitschrift für Dialektologie und Linguistik* 78(2): 115–154.

Birkenes, Magnus. 2014. *Subtraktive Nominalmorphologie in den Dialekten des Deutschen. Ein Beitrag zur Interaktion von Phonologie und Morphologie* [Zeitschrift für Dialektologie und Lingistik – Beihefte 156]. Stuttgart: Steiner.

Birkenes, Magnus. 2018. Frequency as a key to language change and reorganisation: On subtraction in German dialects. In *Reorganising Grammatical Variation. Diachronic Studies in the Retention, Redistribution and Refunctionalisation of Linguistic Variants* [Studies in Language Companion Series 203], Antje Dammel, Mirjam Schmuck & Matthias Eitelmann (eds), 57–92. Amsterdam: John Benjamins.

Booij, Geert. 2010. *Construction Morphology*. Oxford: OUP.

Bresnan, Joan, Deo, Ashwini & Sharma, Devyani. 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. https://doi.org/10.1017/S1360674307002274

Brown, Dunstan, Chumakina, Marina & Corbett, Greville G. (eds). 2013. *Canonical Morphology and Syntax*. Oxford: OUP.

Brown, Dunstan & Chumakina, Marina. 2013. What there might be and what there is: An introduction to canonical typology. In *Canonical Morphology and Syntax*, Dunstan Brown, Marina Chumakina & Grevielle G. Corbett (eds), 1–19. Oxford: OUP.

Bybee, Joan L. 1985. Morphology. *A Study of the Relation between Meaning and Form* [Typological Studies in Language 9]. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.9

Bybee, Joan L. 1994. Morphological universals and change. In *The Encyclopedia of Language and Linguistics*, Vol. 5, Ronald E. Asher (ed.), 2557–2562. Oxford: OUP.

Bybee, Joan. 1995. Regular morphology and the lexicon. *Language and Cognitive Processes* 10: 425–455. https://doi.org/10.1080/01690969508407111

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge MA: The MIT Press.

Corbett, Greville. 2007. Canonical typology, suppletion, and possible Words. *Language* 83(1): 8–42. https://doi.org/10.1353/lan.2007.0006

Corbett, Greville G. 2011. Higher order exceptionality in inflectional morphology. In *Expecting the Unexpected* [Trends in Linguistics – Studies and Monographs 216], Horst J. Simon & Heike Wiese (eds), 107–126. Berlin: De Gruyter. https://doi.org/10.1515/9783110219098.107

Corbett, Greville G. 2012. *Features*. Cambridge: CUP. https://doi.org/10.1017/CBO9781139206983

Corbett, Greville G. 2015. Morphosyntactic complexity: A typology of lexical splits. *Language* 91(1): 145–193. https://doi.org/10.1353/lan.2015.0003

Cornips, Leonie. 2009. Empirical syntax: Idiolectal variability in two- and three-verb clusters in regional standard Dutch and Dutch dialects. In *Describing and Modeling Variation in Grammar* [Trends in Linguistics – Studies and Monographs 204], Andreas Dufter, Jürg Fleischer & Guido Seiler (eds), 203–224. Berlin: De Gruyter.

Dammel, Antje & Gillmann, Melitta. 2014. Relevanzgesteuerter Umbau der Substantivflexion im Deutschen. Spiegelt Diachronie Typologie? *Beiträge zur Geschichte der deutschen Sprache und Literatur (PBB)* 136(2): 173–229. https://doi.org/10.1515/bgsl-2014-0016

Dellit, Otto. 1913. *Die Mundart von Kleinschmalkalden (Laut- und Formenlehre, Syntax und Wortschatz)*. Marburg: Elwert.

Dentler, Sigid. 1997. Zur Perfekterneuerung im Mittelhochdeutschen. Die Erweiterung des zeitreferentiellen Funktionsbereichs von Perfektfügungen [Göteborger germanistische Forschungen 37]. Göteborg: Acta Universitatis Gothoburgensis.

De Vogelaer, Gunther & Seiler, Guido (eds). 2012. *The Dialect Laboratory: Dialects as a Testing Ground for Theories of Language Change* [Studies in Language Companion Series 128]. Amsterdam: John Benjamins.

Dressler, Wolfgang U. 2000: Subtraction. In *Morphology. An International Handbook on Inflection and Word-Formation* [Handbooks of Linguistics and Communication Science 17/1], Geert Booij, Christian Lehmann & Joachim Mugdan (eds), 581–587. Berlin: De Gruyter.

Dubenion-Smith, Shannon A. 2010. Verbal complex phenomena in West Central German: Empirical domain and multi-causal account. *Journal of Germanic Linguistics* 22(2): 99–191. https://doi.org/10.1017/S1470542709990249

Dufter, Andreas, Fleischer, Jürg & Seiler, Guido (eds). 2009. *Describing and Modeling Variation in Grammar* [Trends in Linguistics – Studies and Monographs 204]. Berlin: De Gruyter. https://doi.org/10.1515/9783110216097

Embick, David & Noyer, Rolf. 2001. Movement operations after syntax. *Linguistic Inquiry* 32(4): 555–595. https://doi.org/10.1162/002438901753373005

Fischer, Hanna. 2018. *Präteritumschwund im Deutschen. Dokumentation und Erklärung eines Verdrängungsprozesses* [Studia Linguistica Germanica 132]. Berlin: De Gruyter.

Fleischer, Jürg & Simon, Horst. 2013. *Sprachwandelvergleich – Comparing Diachronies* [Linguistische Arbeiten 550]. Berlin: De Gruyter. https://doi.org/10.1515/9783110313468

van Geert, Paul. 2011. The contribution of complex dynamic systems to development. *Child Development Perspectives* 5(4): 273–278. https://doi.org/10.1111/j.1750-8606.2011.00197.x

Girnth, Heiko. 2000. *Untersuchungen zur Theorie der Grammatikalisierung am Beispiel des Westmitteldeutschen* [Reihe Germanistische Linguistik 223]. Tübingen: Niemeyer. https://doi.org/10.1515/9783110941555

Greenberg, Joseph H. 1963. Some universals of grammar with particular reference to the order of meaningful elements. In *Universals of Language*, Joseph Greenberg (ed.), 73–113. Cambridge MA: The MIT Press.

Haegeman, Liliane & Lohndal, Terje. 2010. Negative concord and multiple Agree: A case study of West Flemish. *Linguistic Inquiry* 41: 181–211. https://doi.org/10.1162/ling.2010.41.2.181

Haider, Hubert. 2011. Grammatische Illusionen – lokal wohlgeformt – global deviant. *Zeitschrift für Sprachwissenschaft* 30: 223–257. https://doi.org/10.1515/zfsw.2011.009

Herrgen, Joachim. 2005. Sprachgeographie und Optimalitätstheorie: Am Beispiel der *t*-Tilgung in Auslaut-Clustern des Deutschen. *Zeitschrift für Dialektologie und Linguistik* 72(3): 278–317.

Heyse, Thurid, Klepsch, Alfred, Mang, Alexander, Reichel, Sibylle & Arzberg, Steffen. 2007. *Sprachatlas von Mittelfranken (SMF)*, Vol. 7: *Morphologie und Syntax* [Bayerischer Sprachatlas – Regionalteil 2]. Heidelberg: Winter.

Hockett, Charles F. 1954. Two models of grammatical description. *Word* 10: 210–231. https://doi.org/10.1080/00437956.1954.11659524

Hockett, Charles F. 1960. The origin of speech. *Scientific American* 203: 88–111. https://doi.org/10.1038/scientificamerican0960-88

Höhle, Tilman N. 2006. Observing non-finite verbs: Some 3V phenomena in German-Dutch. In *Form, Structure, and Grammar. A Festschrift Presented to Günther Grewendorf on Occasion of his 60th Birthday* [Studia Grammatica 63], Patrick Brandt & Eric Fuß (eds), 55–77. Berlin: Akademie-Verlag. https://doi.org/10.1524/9783050085555.55

Hotzenköcherle, Rudolf. 1962. Entwicklungsgeschichtliche Grundzüge des Nhd. *Wirkendes Wort* 12: 321–331.

Kayne, Richard. 1996. Microparametric syntax: Some introductory remarks. In *Microparametric Syntax and Dialect Variation* [Current Issues in Linguistic Theory 139], James R. Black & Virginia Motapanyane (eds), ix–xviii. Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.139.01kay

Klein, Wolfgang. 1994. *Time in Language*. London: Routledge.

König, Werner. 2015. *dtv-Atlas Deutsche Sprache*, 18th edn. München: Deutscher Taschenbuch Verlag.

Köpcke, Klaus-Michael. 1988. Schemas in German plural formation. *Lingua* 74: 303–335. https://doi.org/10.1016/0024-3841(88)90064-2

Kortmann, Bernd (ed.). 2004. *Dialectology meets Typology. Dialect Grammar from a Cross-Linguistic Perspective* [Trends in Linguistics – Studies and Monographs 153]. Berlin: De Gruyter.

Kortmann, Bernd. 2010. Areal variation in syntax. In *Language and Space. An International Handbook of Linguistic Variation* [Handbooks of Linguistics and Communication Science 30], Peter Auer & Jürgen Erich Schmidt (eds), 837–864. Berlin: De Gruyter.

Labov, William. 1966. *The Social Stratification of English in New York City*. Washington DC: Center for Applied Linguistics.

Lakatos, Imre. 1978. The methodology of scientific research programmes. In *Philosophical Papers*, Vol. 1, John Worrall & Gregory Currie (eds). Cambridge: CUP.

Leiss, Elisabeth. 1992. *Die Verbalkategorien des Deutschen. Ein Beitrag zur Theorie der sprachlichen Kategorisierung* [Studia Linguistica Germanica 31]. Berlin: Walter de Gruyter.

Lenz, Alexandra N. 2007. Zur Grammatikalisierung von *geben* im Deutschen und Lëtzebuergeschen. *Zeitschrift für Germanistische Linguistik* 35(1–2): 52–82.

Lenz, Alexandra N., Ahlers, Timo & Werner, Martina. 2015. Zur Dynamik bairischer Dialektsyntax – eine Pilotstudie. *Zeitschrift für Dialektologie und Linguistik* 81(1): 1–33.

Loporcaro, Michele. 2017. *Gender from Latin to Romance. History, Geography, Typology*. Oxford: OUP.

Maiden, Martin. 2005. Morphological autonomy and diachrony. In *Yearbook of Morphology 2004*, Geert Booij & Jaap van Marle (eds), 137–175. Berlin: Springer. https://doi.org/10.1007/1-4020-2900-4_6

Martinet, André. 1955. *Économie des changements phonétiques: Traité de phonologie diachronique*. Berne: Francke.

[MAND:] de Schutter, Georges, van den Berg, Boudewijn, Goeman, Ton, van Oostendorp, Marc & van Reenen, Pieter (eds). 2005–2008. *Morfologische Atlas van de Nederlandse Dialecten.* 2 Vols. Amsterdam: Amsterdam University Press. https://doi.org/10.5117/9789053566961

Moulton, William G. 1960. The short vowel systems of northern Switzerland. A study in structural dialectology. *Word* 16(2): 155–182. https://doi.org/10.1080/00437956.1960.11659724

Moulton, William G. 1961. Lautwandel durch innere Kausalität: Die ostschweizerische Vokalspaltung. *Zeitschrift für Mundartforschung* 28(3): 227–251.

[MRhSA:] Bellmann, Günter, Herrgen, Joachim & Schmidt, Jürgen Erich. 1994–2002. *Mittelrheinischer Sprachatlas*. 6 Vols. Tübingen: Niemeyer.

Nerbonne, John. 2010. Measuring the diffusion of linguistic change. *Philosophical Transactions of the Royal Society* 365: 3821–3828. https://doi.org/10.1098/rstb.2010.0048

Newmeyer, Frederick J. 1998. *Language Form and Language Function*. Cambridge MA: The MIT Press.

Niebaum, Hermann & Macha, Jürgen. 2014. *Einführung in die Dialektologie des Deutschen*, 3rd edn. Berlin: De Gruyter. https://doi.org/10.1515/9783110338713

Nikolaeva, Irina. 2013. Unpacking finiteness. In *Canonical Morphology and Syntax*, Dunstan Brown, Marina Chumakina & Greville G. Corbett (eds), 99–122. Oxford: OUP.

Norde, Muriel. 2011. Degrammaticalization. In *The Oxford Handbook of Grammaticalization*, Bernd Heine & Heiko Narrog (eds), 475–487. Oxford: OUP.

Nübling, Damaris. 2009. *Müssen, dürfen, können, mögen:* Der Umlaut in den Präteritopräsentia als transkategorialer Pluralmarker. *Beiträge zur Geschichte der deutschen Sprache und Literatur* (PBB) 131: 207–228. https://doi.org/10.1515/bgsl.2009.025

Nübling, Damaris. 2013. Zwischen Konservierung, Eliminierung und Funktionalisierung: Der Umlaut in den germanischen Sprachen. In *Sprachwandelvergleich – Comparing Diachronies* [Linguistische Arbeiten 550], Jürg Fleischer & Horst J. Simon (eds), 15–42. Berlin: De Gruyter. https://doi.org/10.1515/9783110313468.15

Oubouzar, Erika 1974. Über die Ausbildung der zusammengesetzten Verbformen im deutschen Verbalsystem. *Beiträge zur Geschichte der deutschen Sprache und Literatur* (PBB) 95: 5–96.

Penka, Doris. 2011. *Negative indefinites*. Oxford: OUP.

Popper, Karl. 1972. *The Logic of Scientific Discoveries*. London: Hutchinson.

Rabanus, Stefan. 2005. Dialektwandel im 20. Jahrhundert: Verbalplural in Südwestdeutsch-land. In *Akten de 1. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen IGDD am Forschungsinstitut für deutsche Sprache "Deutscher Sprachatlas" der Philipps-Universität Marburg vom 5. – 8. März 2003* [Zeitschrift für Dialektologie und Linguistik – Beihefte 130], Eckhard Eggers, Jürgen Erich Schmidt & Dieter Stellmacher (eds), 267–290. Stuttgart: Franz Steiner.

Rabanus, Stefan. 2008. *Morphologisches Minimum. Distinktionen und Synkretisman im Minimal-satz hochdeutscher Dialekte* [Zeitschrift für Dialektologie und Linguistik – Beihefte 134]. Stuttgart: Franz Steiner.

Rabanus, Stefan. 2010. Areal variation in morphology. In *Language and Space. An International Handbook of Linguistic Variation* [Handbücher zur Sprach- und Kommunikationswissen-schaft 30], Peter Auer & Jürgen Erich Schmidt (eds), 804–821. Berlin: De Gruyter.

Rabanus, Stefan. To appear. Komparative Aspekte der deutschen Regionalsprachen: Morpho-logie. In *Language and Space. An International Handbook of Linguistic Variation: German Dialects*, Jürgen Erich Schmidt & Joachim Herrgen (eds). Berlin: De Gruyter.

Ramelli, Christian. 2016. Über progressive und konservative Rheinfranken. In *Syntax aus Saarbrücker Sicht I* [Zeitschrift für Dialektologie und Linguistik – Beihefte 165], Augustin Speyer & Philipp Rauth (eds), 69–91. Stuttgart: Franz Steiner.

Ronneberger-Sibold, Elke. 1990. Zur Verselbständigung sprachlicher Einheiten: Der deutsche Umlaut. In *Spielarten der Natürlichkeit – Spielarten der Ökonomie, Beiträge zum 5. Esse-ner Kolloquium über "Grammatikalisierung: Natürlichkeit und Systemökonomie"*, Norbert Boretzky, Werner Enninger & Thomas Stolz (eds), 185–205. Bochum: Brockmeyer.

Rowley, Anthony. 2004. Das Leben ohne Genitiv und Präteritum: Oberdeutsche Morphologien im Vergleich. In *Alemannisch im Sprachvergleich. Beiträge zur 14. Arbeitstagung für ale-mannische Dialektologie in Männedorf (Zürich), 16.18.09.2002* [Zeitschrift für Dialektologie und Linguistik – Beihefte 129], Elvira Glaser, Peter Ott & Rudolf Schwarzenbach (eds), 343–362. Stuttgart: Franz Steiner.

Ruoff, Arno. 1984. *Alltagstexte. Transkriptionen von Tonbandaufnahmen aus Baden- Württem-berg und Bayrisch-Schwaben*, Vol. 1 [Idiomatica 10]. Tübingen: Niemeyer.

Salzmann, Martin. 2019. Displaced Morphology in German verb clusters. An argument for post-syntactic morphology. *Journal of Comparative Germanic Linguistics* 22: 1–53.

[SBS:] König, Werner (ed.). 1997–2009. *Sprachatlas von Bayerisch-Schwaben* [Bayerischer Sprach-atlas – Regionalteil 1], 14 Vols. Heidelberg: Universitätsverlag Carl Winter.

[SDS:] Hotzenköcherle, Rudolf & Baumgartner, Heinrich (eds). 1962–1997. *Sprachatlas der deutschen Schweiz*. 11 Vols. Bern: Francke.

Schallert, Oliver. 2014. *Zur Syntax der Ersatzinfinitivkonstruktion: Typologie und Variation* [Stu-dien zur Deutschen Grammatik 89]. Tübingen: Stauffenburg.

Schallert, Oliver. To appear. A note on misplaced or wrongly attached *zu* 'to' in German. *Journal of Germanic Linguistics*.

Schirmunski, Viktor M. 1962 [2010]. *Deutsche Mundartkunde. Vergleichende Laut- und Formen-lehre der deutschen Mundarten* [Veröffentlichungen des Instituts für deutsche Sprache und Literatur 25]. Berlin: Akademie-Verlag. (2010 edn. Frankfurt: Peter Lang).

Schmid, Tanja. 2005. *Infinitival Syntax. Infinitivus Pro Participio as a Repair Strategy* [Linguistics Today 79]. Amsterdam: John Benjamins. https://doi.org/10.1075/la.79

Schmidt, Jürgen Erich & Herrgen, Joachim 2011. *Sprachdynamik. Eine Einführung in die mo-derne Regionalsprachenforschung* [Grundlagen der Germanistik 49]. Berlin: Erich Schmidt.

Schmidt, Jürgen Erich, Dammel, Antje, Girnth, Heiko & Lenz, Alexandra. To appear. Sprache und Raum im Deutschen: Aktuelle Entwicklungen und Forschungsdesiderate. In *Language and Space. An International Handbook of Linguistic Variation: German dialects*, Jürgen Erich Schmidt & Joachim Herrgen (eds), 28–60. Berlin: De Gruyter. https://doi.org/10.1515/9783110261295-002

Schwarz, Ernst. 1950. *Die deutschen Mundarten*. Göttingen: Vandenhoeck & Ruprecht.

Seiler, Guido. 2004. On three types of dialect variation and their implications for linguistic theory. Evidence from verb clusters in Swiss German dialects. In *Dialectology Meets Typology. Dialect Grammar from a Cross-linguistic Perspective* [Trends in Linguistics – Studies and Monographs 153], Bernd Kortmann (ed.), 367–399. Berlin: De Gruyter.

Seiler, Guido. 2008. Nicht-konkatenative Morphologie: Eine Forschungsaufgabe für die Dialektologie. In *Dialektale Morphologie, dialektale Syntax. Beiträge zum 2. Kongress der Internationalen Gesellschaft für Dialektologie des Deutschen, Wien, 20. – 23. September 2006*, Franz Patocka & Guido Seiler (eds), 181–197. Wien: Edition Praesens.

Shrier, Martha. 1965. Case systems in German dialects. *Language* 41(3): 420–438. https://doi.org/10.2307/411785

Sieberg, Bernd. 1984. Perfekt und Imperfekt in der gesprochenen Sprache. PhD dissertation, University of Bonn.

Steil, Claudia. 1989. Untersuchungen zum Verbalkomplex im Schwäbischen. MA thesis, University of Tübingen.

Stewart, Thomas W. 2015. *Contemporary Morphological Theories. A User's Guide*. Edinburgh: EUP.

Stump, Gregory T. 2001. *Inflectional Morphology. A Theory of Paradigm Structure*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511486333

Stump, Gregory T. 2016. *Inflectional Paradigms: Content and Form at the Syntax-Morphology Interface* [Cambridge Studies in Linguistics 149]. Cambridge: CUP. https://doi.org/10.1017/CBO9781316105290

Thornton, Anna Maria. 2012. Reduction and maintenance of overabundance. A case study on Italian verb paradigms. *Word Structure* 5(2): 183–207. https://doi.org/10.3366/word.2012.0026

Vogel, Ralf. 2009. Skandal im Verbkomplex. Betrachtungen zur scheinbar inkorrekten Morphologie in infiniten Verbkomplexen des Deutschen. *Zeitschrift für Sprachwissenschaft* 28: 307–346. https://doi.org/10.1515/ZFSW.2009.028

Weinreich, Uriel. 1954. Is a structural dialectology possible? *Word* 10: 388–400. https://doi.org/10.1080/00437956.1954.11659535

Weiß, Helmut. 2001. On two types of natural languages. Some consequences for linguistics. *Theoretical Linguistics* 27(1): 87–103. https://doi.org/10.1515/thli.2001.27.1.87

Weiß, Helmut. 2002. A quantifier approach to negation in natural languages. Or why negative concord is necessary. *Nordic Journal of Linguistics* 25(2): 125–153. https://doi.org/10.1080/033258602321093346

Weiß, Helmut. 2004. Vom Nutzen der Dialektsyntax. In *Morphologie und Syntax deutscher Dialekte und Historische Dialektologie des Deutschen*, Franz Patocka & Peter Wiesinger (eds), 21–41. Wien: Praesens.

Weiß, Helmut. 2017. Negation. In *SyHD-Atlas*, Jürg Fleischer, Alexandra N. Lenz & Helmut Weiß (eds), 449–461. Marburg, Wien, Frankfurt a.M. <http://www.syhd.info/apps/atlas/#doppelte-negation (28 September 2018).

Wenker, Georg. 1888–1923. *Sprachatlas des Deutschen Reichs*. Marburg. Available via the Sprach-GIS system <https://www.regionalsprache.de/SprachGIS/Map.aspx> (28 September 2018).

Wenker, Georg. 2013–2014. *Schriften zum "Sprachatlas des Deutschen Reichs" – Gesamtausgabe* [Deutsche Dialektgeographie 111.1–3], Alfred Lameli, Johanna Heil & Constanze Wellendorf (eds). Hildesheim: Olms.

Wurzel, Wolfgang Ullrich. 1982. Wege der Morphologisierung phonologischer Regeln. In *Phonologie – Morphonologie – Morphologie* [Linguistische Studien. Reihe A, Arbeitsberichte 93], Wolfgang Ullrich Wurzel (ed.), 1–29. Berlin: Akademie der Wissenschaften der DDR.

Wurzel, Wolfgang Ullrich. 1987. System-dependent morphological naturalness in inflection. In *Leitmotifs in Natural Morphology* [Studies in Language Companion Series 10], Wolfgang Dressler, Willi Mayerthaler, Oswald Panagl & Wolfgang Ullrich Wurzel (eds), 59–96. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.10.22wur

Zeman, Sonja. 2010. *Tempus und "Mündlichkeit" im Mittelhochdeutschen. Zur Interdependenz grammatischer Perspektivensetzung und "Historischer Mündlichkeit" im mittelhochdeutschen Tempussystem* [Studia Linguistica Germanica 102]. Berlin: De Gruyter. https://doi.org/10.1515/9783110227697

Zwicky, Arnold & Pullum, Geoffrey K. 1983. Cliticization vs. inflection: English *n't. Language* 59(3): 502–513. https://doi.org/10.2307/413900

Possessive -*s* in German

Development, variation and theoretical status

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In several Germanic languages, such as English and Swedish, the former genitive morpheme -*s* has developed into a possessive marker, which has been described as a special clitic by some scholars. Synchronic and diachronic corpus data as well as a comparison with English and Dutch show that German possessive -*s* is going through a similar, though less radical change as its Germanic counterparts, resulting in morphosyntactic variation. This high amount of synchronic and diachronic variation makes it hard to categorize -*s* in German. However, the marker can best be described as a bound element that gradually loses its paradigmaticity. This gradual rather than categorical change in progress on an affix-clitic-continuum challenges both synchronic as well as diachronic morpheme-based theoretical approaches.

1. Introduction

In my paper, I want to focus on a special possessive construction in German, namely the one with an *s*-marked proper name preceding its head noun (e.g. *Kevins Hund* 'Kevin-POSS dog'; traditionally called prenominal or Saxonian genitive). For this possessive -*s* construction we can observe both synchronic and diachronic morphological as well as morphosyntactic variation.[1] The main focus lies on the (changing)

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1. The term 'possession' is used here in the widest sense and has to be understood as a label for a specific phrase whose core meaning can be described as possession or ownership (e.g. *John's bike*). However, not all relations termed as 'possession' (e.g. subjective genitives like *John's experience* or objective genitives like *John's rescue*) can be subsumed under possession in the narrow sense, which entails, according to Koptjevskaja-Tamm (2001), kinship, legal ownership or body parts (cf. Duden-Grammar 2016: 837–844 for a similar approach concerning the semantic subtypes of the genitive). By doing so I want to avoid confusion between the genitive case as an element forming part of the case system and possessive -*s*, which behaves differently in many respects. The term 'possessive -*s*' is adopted from other scholars such as Börjars et al. (2013) and Scott (2014).

morphological status that is assigned to the possessive marker, which is traditionally described as a genitive morpheme (cf. e.g. Neef 2006; Duden-Grammar 2016: 207–210). A comparison with more "progressive" Germanic languages such as English shows that the (former) genitive suffix *-s* has developed into a possessive marker here and has been described as a special clitic by some scholars (cf. Anderson 2008, 2013; among others). Recently, it has been claimed that a similar development can be observed in German. Scholars such as Fuß (2011) and Scott (2014) argue that the *-s* in prenominal possessive constructions like (1) cannot be interpreted as a kind of genitive use. The main reason for an interpretation as a less bound once-only marker lies in the fact that *-s* can be used not only with masculine and neuter proper nouns but also with feminines, while the (coexisting) concordial case marker *-(e)s* is limited to masculine and neuter nouns (cf. (2a) vs. (2b)).

(1) Tina-s   Auto
     Tina-POSS/GEN.SG car
     'Tina's car'

(2) a.   das Fahrrad d-er   alt-en   Frau-Ø
          the bike   the-GEN   old-GEN   woman
          'the old woman's bike'
     b.   das Fahrrad d-es   alt-en   Mann-(e)s
          the bike   the-GEN   old-GEN   man-GEN
          'the old man's bike'

The diachronic development of possessive *-s* is reflected in synchronic variation. For example, the *-s* is sometimes only attached to the right edge of two coordinated proper names (e.g. *Julia-Ø und Lindas Büro* 'Julia and Linda's office') and combines with indefinite pronouns denoting human beings in informal speech (e.g. *irgendwems Schuhe* 'somebody's shoes'). Additionally, an extended possessive *-s* construction, consisting of a possessive pronoun and a kinship term (in a wider sense) such as *mein Papas Bruder* 'my father's brother', can be observed in informal speech (cf. Section 2.2).

The observable synchronic and diachronic variation is particularly interesting from a theoretical perspective. Analyzing possessive *-s* as a bound marker that gradually loses its inflectional properties challenges theories assuming clear-cut categories. From a synchronic theoretical perspective, I will discuss what an affix vs. clitic analysis means for the DP and if constructionist approaches contribute to a better understanding of the morphological status of the invariant marker. From a diachronic perspective, I will ask whether we are dealing with degrammaticalization, constructionalization, or exaptation.

The structure of the paper is as follows: In Section 2, possessive *-s* is analyzed from an empirical perspective. First, its diachronic development from a concordial

genitive marker into a superstable possessive marker will be described before its occurrences in present-day German are investigated. A comparison of the German data with possessive -*s* equivalents in English and Dutch will support a non-genitive analysis. Section 3 constitutes the theoretical part of the paper. After a detailed morphological analysis of -*s* is provided in Section 3.1, the consequences for syntactic modelling are addressed (3.2). As it is shown, possessive -*s* resists a simple categorization since we are dealing with a change in progress. Section 3.3 finally addresses how this change can be modelled and discusses which model of language change is most suitable for the observed change in progress.

2.   Empirical analysis

German possessive -*s* – unlike its counterparts in other languages such as Swedish or English – occurs predominantly with monolexemic prenominal possessors, i.e. proper nouns and kinship terms used as proper names. Its origins lie in the strong masculine declension class for proper nouns. Being a regular genitive case marker, -*s* initially occurred only with masculine names. In this section, I will outline the spread in the early Modern German period based on corpus data. Subsequently, I will draw a data-based picture of the current possessive -*s* constructions before comparing German with English and Dutch.

2.1   The development of the superstable marker -s

Originally, proper nouns and common nouns inflected in almost the same way. In Old High German (500/750–1050), proper nouns showed rich allomorphy and could belong to several declension classes (cf. Table 1). Whether a name belonged to the strong or to the weak declension depended broadly speaking on its ending: a final consonant made the name inflect strongly, a final vowel made it inflect weakly (cf. Nübling 2012: 229). As Table 1 shows, the genitive -(*e*)*s* occurs only in the strong masculine paradigm.

Table 1. Strong and weak genitive markers of masculine and feminine personal names in Old High German (Nübling 2012: 229–230; Steche 1927: 140)

	STRONG DECLENSION			WEAK DECLENSION	
	masculine (*a*-/*i*-stem)	feminine ((*j*)*ō*-stem)	feminine (*i*-stem)	masculine	feminine
GEN	*Hartmuot-**es***	*Gudrūn-a*	*Hiltigart-ī*	*Brūn-in/-en*	*Mari-ūn*

The following periods are characterized by paradigmatic (and later syntagmatic) deflexion. Within the paradigmatic cells of the genitive case we can observe leveling between strong and weak as well as between feminine and masculine inflection (cf. Nübling 2012: 231; Ackermann 2018b).[2] The important change starts in the Early New High German period (1350–1650). From this period on, the genitive *-s* of the strong masculine proper noun paradigm begins to spread into the other onymic declension classes, a process that is schematically illustrated in Table 2. First – in an intermediate phase – the *-s* occurs suffixed to the old genitive ending *-en > -en-s* in the weak masculine paradigm; *-en-s* is later replaced by the short ending *-s*.[3] More surprisingly, the strong masculine *-s* also spreads to the strong and weak feminine paradigm later, thus running counter to the advancing differentiation of feminine nouns from masculine and neuter nouns, which often coincide in the non-proprial domain in German.[4]

Table 2. The spread of *-s* in the genitive case of personal names in (Early) New High German (Steche 1927: 140)

| | STRONG DECLENSION | | WEAK DECLENSION |
	masculine	feminine	
GEN	Hartmut-**s** / (-ens)	Hiltegard-e > **-ens** > -s	Brun-en > -(**e**)**ns** > -s Mari-en > -(**e**)**ns** > -s

According to Wurzel (1987: 82–83) we can observe the spread of a superstable marker ('überstabiler Marker'), which he defines as follows:

> [...] single markers are taken from one class to the other. This is always the case for markers of stable inflectional classes which also occur in non-stable inflectional classes. Thus, they exhibit a higher degree of stability than the stable inflectional class as a whole and can be characterized as *superstable markers*. Superstable markers show a trend towards 'diverging' from the inflectional paradigm and independently spreading more quickly and comprehensively than the inflectional

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2.   The Middle High German period (1050–1350) is characterized by the weakening of unstressed vowels, which led to a syncretism of the weak feminine and masculine paradigm to *-en*. Additionally, the vocalic genitive markers of the strong feminine classes were reduced to schwa. Strong masculine *-(e)s* was not affected by the reductive sound change.

3.   This double ending in the genitive case can currently be observed with weak masculine common nouns *der Name* 'the name', *des Name-n-s* 'the-GEN name-GEN').

4.   A possible explanation for the timing of the spread might be the avoidance of homonymy. In Early New High German *-en* was not only a weak genitive ending but also present as a superstable object marker in the onymic paradigm. Further evidence for the avoidance of leveling between dative/accusative and genitive case comes from the distribution of Latin endings: If only one marker exists for dative and genitive (e.g. *-ae* of the a-declension) the suffix is only used for marking the latter. For more details see Ackermann (2018b).

classes to which they belong. [...] Cases where superstable markers are attached to inflectional forms already having the respective categorial characteristics illustrate that the spreading of single markers follows non-proportional analogy and does not involve the basic lexical form, cf. *die Junge-n* 'the boys' > *die Junge-n-s* in analogy to *die Mädel-s* etc.

The spreading of superstable markers in inflectional systems results in a kind of 'avalanche effect': Every spreading of a marker to a new inflectional class further increases its degree of stability, which improves the preconditions for its transfer to still further inflectional classes, etc.

Thus far, the development of the superstable marker -*s* within the personal name paradigm has not been described empirically. Therefore, I conducted a diachronic corpus study based on data taken from *Deutsches Textarchiv* (*DTA*) 'German text archive', a historical (and still growing) reference corpus of early New High German that covers mainly the 17th–19th century (130 million tokens; 2,402 texts at the end of my data collection in 02/2016), which is the relevant period of paradigmatic deflexion. It consists of fiction, non-fiction (scientific texts and so called 'Gebrauchsliteratur', i.e. literature that is written for a special purpose such as sermons, travel reports etc.) as well as newspaper texts.[5] Since named entity recognition in the DTA is not reliable, I did not search for the part of speech tag NE (i.e. 'named entity') but used a name sample. This sample consists of 13 female and 14 male first name types, which differ in number of syllables (ranging from 1 to 4), the quality of the final sound (vowel, sonorant, sibilant, obstruent) and the origin of the name (e.g. Latin, Greek, etc.).[6] The search resulted in 18,019 hits from 1,018 different titles by 569 authors. All instances were coded manually for case and type of inflectional marker, ± article as well as syntactic function and position. In total, 3,253 first names in the genitive case could be extracted. Table 3 gives an overview of the data base.

Table 3. Amount and distribution of first names in the genitive case per gender and century

	Masculine names	**Feminine names**
17th c. (1597–1699)	327	201
18th c. (1700–1799)	656	325
19th c. (1800–1899)	902	718
20th c. (1900–1925)*	52	72
Total	3,253	

* The numbers for the 20th century are very small since the DTA covers mainly the 17th, 18th and 19th century.

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5.   For information concerning the corpus such as a list of all currently included works or details about the genre distribution, see http://deutschestextarchiv.de [last accessed on May 3, 2018].

6.   I only searched for first names since they are the most prototypical name class and German has an exclusive inventory of these names distinct from that of common nouns.

Based on the 3,253 genitive phrases with a proper noun, I will now discuss two crucial developments:

1. PARADIGMATIC DEFLEXION (i.e. the reduction of allomorphy):
   Anne-n, Anne-ns, Anne-s, Ann-ae > Anne-s
2. SYNTAGMATIC DEFLEXION (i.e. the loss of inflectional marking on the name):
   *die Mutter **d-es**   groß-en   Alexander-s > die Mutter **d-es***
   the mother the-GEN great-GEN Alexander-GEN the mother the-GEN
   groß-en   Alexander-Ø
   great-GEN Alexander
   'the mother of great Alexander'

2.1.1   Paradigmatic deflexion

Let us first have a look at the genitive allomorphs that we find in the data from the 17th–20th century. Besides the German weak (*-en*), mixed (*-ens*) and strong (*-s*) inflectional markers we also find the Latin markers *-is* (consonantal declension) and *-i* (o-declension) for masculine names and *-ae* (a-declension) for feminine names (cf. Table 4).[7]

Table 4. German and Latin genitive allomorphs for feminine and masculine names (17th–20th c.)

	Declension	Feminine names	Masculine names
German	weak	*Ann-**en***	*Albert-**en***
	mixed	*Ann-**ens***	*Albert-**ens***
	strong	*Anna-s/Anna's*	*Albert-s/Albert's*
Latin	(a-/o-decl.)	*Ann-**ae***	*Wilhelm-**i***
	consonantal decl.	*(Hildegard-**is**)*	*Johann-**is***

As Figure 1 shows,[8] masculine and feminine names behave differently regarding the inflectional marking in the genitive case in all three centuries. With masculine names, Latin inflectional markers dominate in the 17th century. Concerning the German markers, we find a considerable amount of weak inflection beside the strong *-s*. In the 18th century, we observe a decrease in Latin declension markers. Here, it is the former strong *s*-marker that compensates for this loss. This marker also spreads into the weak declension. In the 19th century *-s* developed into the

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7.   The Latin marker *-is* for feminine names ending in a consonant is rather rare.

8.   Because the numbers for the 20th century are very small, they are not depicted in Figure 1 and 2. Table 5 gives an overview of the spread of *-s* in the prenominal *s*-construction where the 20th century is included. However, these values have to be treated with caution.

(almost) only genitive marker and could be separated from the stem by a morphographic apostrophe (cf. Nübling 2014; Nowak & Nübling 2017). Another change that can be observed here is the increasing loss of genitive markers in phrases where the genitive is already marked on the determiner (indicated by 'zero' in Figure 1). While in the 17th century the genitive was expressed on the name in over 90% of cases, in the 19th century it is omitted in more than one third of the phrases.

Feminine names show less overall inflectional marking in the genitive case, with an amount of 36–59% zero marking, which is no surprise since the strong paradigm did not provide a marker in Early New High German. As with masculine names, it is Latin endings that predominate in the 17th century. For the German markers the double ending -*ens* occurs most often (21%) in the 17th century. Unlike masculine names, the decrease of Latin markers in the 18th century does not cause an increase of German markers in the feminine paradigm. This implies that -*s* is not productive at this stage. Only in the 19th century does the number of *s*-marked feminine names increase significantly with a moderate effect size (Phi-Coefficient φ)[9] from 4% to 33% ($\chi^2 = 73.707$, $p < 0.001$***, df = 1, φ = 0.37). In the 19th century, the morphographic apostrophe, which separates the name stem from the *s*-marker visually, also occurs with feminine names. Interestingly, here the apostrophe occurs significantly more often than it does with masculine names ($\chi^2 = 90.377$, $p < 0.001$***, df = 1, φ = 0.35). This indicates that writers see a higher need in separating the -*s* within the feminine paradigm, which probably has to do with its non-paradigmaticity.
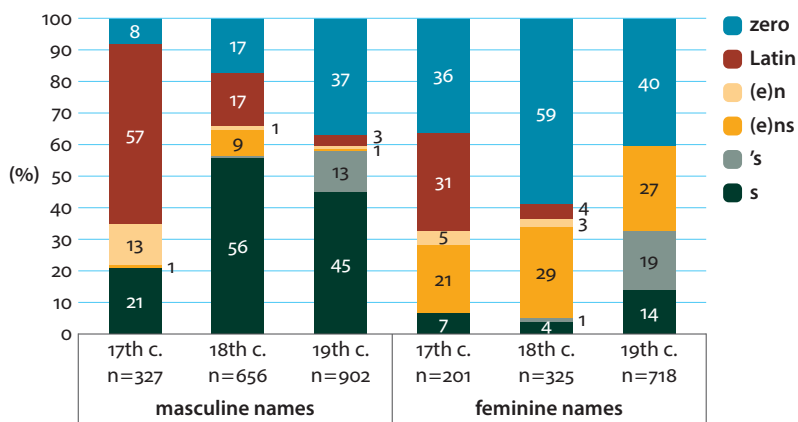
Figure 1. Genitive allomorphy with masculine and feminine first names

9. The effect size φ (phi) theoretically ranges from 0 ('no effect') to 1 ('perfect correlation'); cf. Gries (2014).

To sum up, Figure 1 shows that *-s* was only one of several allomorphs in the masculine paradigm in the 17th century and that it did indeed spread into the feminine paradigm no earlier than the 19th century. Table 5 condenses these findings and shows the time span in which the use of invariant *-s* increased in prenominal possessive constructions. Genitive allomorphy decreased successively and was only lost completely in the 20th century.

Table 5. The enforcement of invariant *-s* in prenominal possessive *-s* constructions with masculine and feminine possessor names

Period	17th c. (n = 217)		18th c. (n = 337)		19th c. (n = 449)		20th c. (n = 34)	
	M	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Invariant *-s* (%)	29.7	10.1	66.4	14.1	96	49.6	100	91.3

2.1.2   *Syntagmatic deflexion*

While bare names have to bear the *s*-marker in a possessive phrase until today,[10] the concordial case marker is mostly omitted when the name is accompanied by a determiner (*Martin-**s** Hund* vs. *der Hund **des** kleinen Martin-Ø*, cf. Section 2.2). As Figure 2 shows, this once-only marking is a newer development for genitive phrases with a masculine name as head. In the 17th and 18th century, concord between the article and the masculine name was the default. This changed rapidly in the 19th century, where once-only marking became the predominant pattern (96%). A look at feminine heads of genitive phrases shows that once-only marking on the determiner was the default in all three centuries observed. While Latin inflected names could co-occur with an article – which is in accordance with the Latin polyinflectional pattern – and co-occurrence of article and inflected name is occasionally possible with the weak or mixed marker, the unparadigmic *-s* hardly ever co-occurs with an article (only 2 instances in 1750 = 1%).

This observation is consistent with the assessment of the grammarians Steche (1927: 146) and Paul (1917: 256), who explicitly mention that the determiner and inflected feminines do not tolerate each other:

> Bei diesen [femininen Namen; TA] hatte sich die Endung *-ens*, später *-s*, nur eingebürgert, wenn der Name ohne Deutewort stand […]; die gleichzeitige Anwendung des weiblichen Deuteworts und der rein männlichen Hauptwortendung *-s* (*der Mariens, Maries*) wäre zu sehr von der Beugung der Gattungswörter abgewichen.

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10. It is only names ending in /s/ that do not show a possessive marker. This omission is typically indicated by an apostrophe in present-day written German (e.g. *Tobias' Hund* 'Tobias's dog').

> With these [feminine names; TA] the ending -*ens,* later -*s*, only became established in cases where the name occurred without an article […]; the concurrent use of the feminine article and the sheer masculine inflectional marker -*s* (*der Mariens, Maries*) would have been too much deviation from the inflectional pattern of common nouns.   (Steche 1927: 146; my translation, TA)

This shows that by the beginning of the 20th century the superstable marker -*s* was perceived as something special and different from common genitival patterns.

    As Ackermann (2018b) shows in detail, both the paradigmatic and the syntagmatic deflexion could be explained by a functional motivation called *morphological schema constancy*, i.e. word form stability through the avoidance of inflectional elements that strongly affect the shape of a word (e.g. nominative: *Anna*, genitive: *Anna-s* instead of *Ann-ens*), or the complete avoidance of inflectional elements (e.g. *die Liebe des Alexander-Ø* vs. *die Liebe des Alexander-s* 'the love of Alexander'). It is no surprise that it is the -*s* from the strong masculine paradigm which develops into a superstable marker in the onymic domain: -*s* is non-syllabic and thus the most word form preserving suffix. By comparison, -*ens* may go along with an additional syllable (feɐ.di.nant(s) > feɐ.di.nan.dəns) and affects the stem in case of a vocalic final sound (huː.go(s) > huː.gəns) (cf. Ackermann & Zimmer 2017 as well as Nowak & Nübling 2017 on word shape preservation in German). However, against the backdrop of schema constancy, the question is rather why the marker resists deflexion and is even spreading currently. As I will discuss in the next sections, this is because the former genitive suffix was reanalyzed as a special possessive marker.
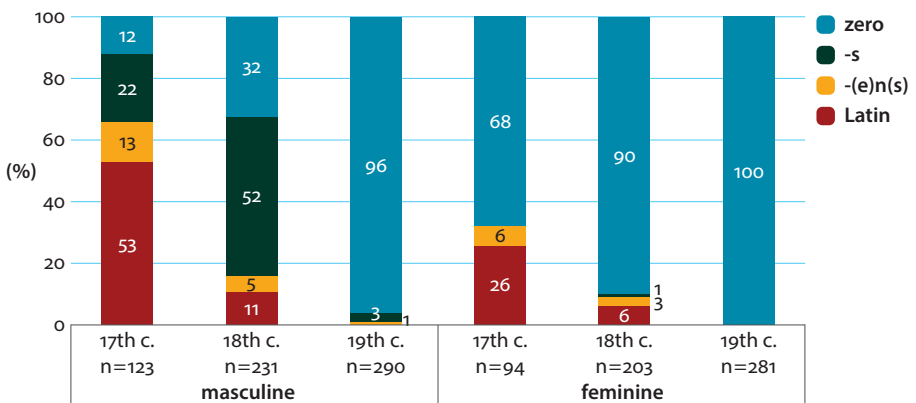
Figure 2. Inflectional patterns of masculine and feminine names accompanied by an article by century

2.2   The current occurrences of possessive -s

As has been shown in the previous section, we can observe an avalanche-like spread of *-s* in early Modern German, which according to Wurzel (1987) is typical of superstable markers. However, from today's perspective, the observable spread of *-s* and the accompanying reduction of allomorphy in the onymic declension cannot be seen as a sign of stability. Rather it must be seen as morphological simplification and the starting point of onymic deflexion. The inflectional change under discussion thus clearly supports Dammel & Nübling's (2006: 99) perspective on superstability, which according to them "marks the beginning of the end of morphological expression". Thus, "superstable markers indicate quite the reverse concerning the category they express, i.e. they only indicate the weakness of the respective category".

As Ackermann (2018a) shows on the basis of web-corpus data (DECOW2012, Schäfer & Bildhauer 2012), syntagmatic name deflexion is indeed more advanced than initially thought in present-day German. The main result is that the *s*-marker only occurs frequently in the possessive *-s* construction (*Annes / Tims Auto* 'Anne's / Tim's car') – more frequently pre- than postnominal.[11] Names governed by genitive prepositions tend to stay uninflected (*wegen Anne / Tim(s)* 'because of Anne / Tim'). Admittedly, it is impossible to judge whether we are dealing with genitive-*s* omission or a change regarding the case government of the preposition from the former genitive towards the (not inflectionally marked) dative. However, a comparison with *wegen* + common noun (e.g. *wegen Todesfall(s)* 'because of death') shows that the amount of (*e*)*s*-containing nouns is much higher here (Ackermann 2018a: 205–206). As already seen in the 19th century, names in postnominal genitive phrases with a determiner hardly ever show an inflectional marker (*das Auto des armen Tim(s)* 'the car of poor Tim'). Here, it is also important to mention that *s*-marking of masculine names in genitive phrases is infrequent but grammatical while the attachment of *-s* to feminine names in all contexts except for the possessive *-s* construction is ruled out and thus ungrammatical.

Besides the omission of *-s* in 'real' genitive phrases, we can observe the emergence of new possessive constructions in present-day German. Here, possessive *-s* is a once-only marker that only attaches to the rightmost element of the possessor phrase and/or is no longer restricted to proper nouns. These nascent constructions are of special interest because a comparison with other Germanic languages such as English shows that similar multi-word possessors have been the starting point for the emergence of clitic-like *-s* in their respective older stages (2.3).

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11.   Ackermann (2018a) only investigated first names. For other name classes such as non-animate place names the distribution may look different (cf. Campe 2013 for factors that drive the allocation of pre- and postnominal proper name possessors in German).

Let us first have a look at two coordinated proper nouns that form one collective possessor such as *Sven und Anna* 'Sven and Anna' in (3). In the parlance of Wälchli (2005) we are dealing with a comitative use of phrase-like tight coordinations. Here the -*s* is sometimes attached only to the right conjunct as in (3). Consistent with Wälchli (2005: 60–62), I locate possessive -*s* outside the coordinate sequence in such cases of 'group inflection' ([*A & B*]*s* and not [*Aø & Bs*]) since it has scope over both coordinands here (cf. also Plank 2011).

(3) Sven und Anna-s   Haus
     Sven and Anna-POSS house
     'Sven and Anna's house'

Data taken from DECOW2012-00 and a questionnaire indicate that once-only marking cannot be regarded as random. The corpus data in Table 6 show that double-marking is still predominant, but once-only marking on the right conjunct is – depending on the animacy of the possessor (on the extended animacy hierarchy) – also relatively frequent.[12] In cases with two coordinated first names, once-only marking is observable in every fourth possessor phrase (24%), with place name possessors this pattern is least likely to occur (12%). As a comparison of pre- and postposed coordinations indicates, once-only marking is much more likely if the possessor phrase precedes the head noun.

Table 6. *s*-marking of two coordinated onymic possessors per name class and position in DECOW2012-00

	PRENOMINAL POSITION			POSTNOMINAL POSITION		
	type of marking			type of marking		
	once-only	double	n	once-only	double	n
First name	24%	76%	247	6%	94%	63
Family name	16%	84%	111	1%	99%	220
Place name	13%	88%	43	1%	99%	1,341

The results of a questionnaire (cf. Ackermann 2018a) in which only first names were tested, and a collective reading of the coordinated names was controlled for, show an even higher amount of once-only marking (39%).

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12. I searched for two coordinated proper nouns via the following query: [word!="der|die|das"] [pos="NE"] [word="und"] [pos="NE" & lemma!=". + s" & word=". + s"]. The last part of the query means that the second name should not end with -*s* but shows the invariant marker. The query yielded 8,250 hits of which I analyzed a random sample of 4,000. After excluding false hits, a sample of 2,025 tight coordinations was analyzed manually.

Besides tight coordinations, complex (historical) proper name possessors cause variation in present-day German. These historical names such as *Walther von der Vogelweide* have the structure first name + postmodification. Here, *von der Vogelweide* is not a typical family name but a medieval byname which refers to the dwelling of the name bearer. According to the Duden-Grammar (2016: 999–1000) the postmodification *von der Vogelweide* (literally 'of the bird meadow') should be treated as a local attribute and thus the first name has to be inflected as in (4a).[13] As the Duden-Grammar notes, however, the *-s* can also be attached to the rightmost element in historical complex names in cases of doubt, i.e. where it is not clear whether the name is a by- or a family name (4b).

(4) a. Walther-*s*   von der Vogelweide-Ø   Gedichte
         Walther-GEN of the bird meadow   poems
     b. Walther-Ø von der Vogelweide-*s*   Gedichte
         Walther   von der Vogelweide-POSS poems

A look at data taken from DECOW2012 shows that there is indeed much variation regarding the *s*-marking of complex proper names. The search for three medieval names (*Walther von der Vogelweide, Wolfram von Eschenbach,* and *Hartmann von Aue*) yielded 467 hits in the web corpus (cf. Table 7). When the complex name functions as prenominal possessor byname-marking is the default (72%). In cases where the medieval name occurs in postposition (without determiner), it is the first name that is predominantly marked (88%). According to Norde (2006: 208) the preference for right-edge marking in the first case might lie in the fact that *-s* serves to connect two DPs/NPs. A phrase such as *Hartmann von **Aues** Gedichte* with the *-s* attached to the final element of the prenominal possessor is less likely to give rise to confusion than ***Hartmanns** von Aue Gedichte.* In the case of postposition *-s* is closer to the head of the possessive phrase when it is attached to the first name (***Gedichte Hartmanns** von Aue*).

Table 7. *s*-marking with a complex historical personal name possessor per positioning in DECOW2012

	First name *Hartmanns von Aue*	Byname *Hartmann von Aues*	n
Prenominal	28%	72%	176
Postnominal	88%	12%	293

13. If the *von* phrase is part of the family name as in *von Kleist,* the *-s* occurs on the rightmost element as in all complex names with the structure first name + family name since the 18th century (*Heinrich von Kleist-**s** Gedichte* 'Heinrich von Kleist's poems'). In earlier periods of German both parts of a personal name could be inflected (first name-GEN + family name-GEN). This is another instance of the reduction of double marking (cf. Ackermann 2018b).

As shown by Zifonun (2001) via an acceptability judgement task – replicated with slight modification in Ackermann (2018a) –, most speakers accept and even prefer the pattern with byname-marking when the possessor is preposed. However, a transfer of right-edge marking to real local attributes that are not part of the name unit such as *aus Berlin* 'from Berlin' in [?]*Anna aus Berlins Sprache* 'Anna from Berlin's language' cannot be observed in present-day German. Those examples were judged unacceptable by most of the participants. Obviously, German possessive -*s* is not (yet) the syntactically free element it is in present-day English.

Finally, I briefly want to discuss two nascent constructions where we can speak of "extended possessive -*s*" (cf. Scott 2014). The extension lies in the fact that -*s* is not attached to a proper name here. However, the possessor still has to be a nominal element, namely an indefinite pronoun denoting human beings (5) or a kinship term in the wider sense (6).

(5) dass ich irgendwem-**s**   beste Freundin sein möchte
     that I   someone.DAT-POSS best friend   be   want
     'that I want to be someone's best friend'   [DECOW2014A]

(6) Das Handy ist in mein Bruder-**s**   Besitz   übergegangen
     The mobile is in my   brother-POSS ownership passed
     'the mobile passed to my brother's ownership'   [DECOW2014A]

As a corpus search in DECOW2014 – the third generation of DECOW with more than 20 billion tokens – shows, extended possessive -*s* occurs only very rarely even in large web corpora. Additionally, it has to be pointed out that these possessors are rather a phenomenon of the informal substandard and by no means accepted by all speakers of German. A search query for the *s*-marked indefinite pronouns *niemands* 'nobody's', *jemands* 'someone's', *irgendjemands* 'anyone's', *irgendwems* 'someone.DAT's', *irgendwens* 'someone.AKK's' and *irgendwers* 'someone.NOM's' yielded only 527 hits in the whole DECOW2014.[14] Similarly, a search query for the string [*mein* 'my' + N-*s*] in all sub-corpora of DECOW2014 yielded no more than 472 hits.[15] A comparison with nearly equivalent postposed masculine and neutral genitival possessors with concord as in *der Hund* <u>*meines Vaters*</u> 'my father's dog' shows how infrequent this is in relation: Here, we get 24,715 hits for [N *meines* N] in only one sub-corpus with 1 billion tokens. Nevertheless, extended possessive -*s* seems to be possible at least for some speakers of German.

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14. For similar instances in Dutch, cf. Booij (2010: 216).

15. I searched for the lemma *mein* 'my' (excluding the masc./neut. genitival form *meines*) followed by any noun that did not end in *s* but shows the possessive marker plus any noun as possessum: [lemma="mein" & word!=".+s"] [pos="NE|NN" & lemma!=".+s" & word=".+'s|.+´s|.+`s|.+s"] [pos="NN"]. All hits were checked manually.

While Scott (2014: 290) interprets the data as a case of entrenchment – through repetition the structure [possessive determiner + acquaintance noun] becomes a name for a particular individual – I see a direct link to the reanalysis of *-s* and the depletion of selection constraints for the possessor (cf. also Fuß 2011: 38 and Ackermann 2018b). After the *-s* became a superstable marker within the paradigm of proper nouns, concord decreased significantly. Thus, the *-s* became a once-only marker in phrases with complex proper name possessors, such as titles or two co-ordinated names. Beginning with the right-edge marking of proper names in the possessor position, occasionally non-proprial possessors may now fill this slot.[16] These prototypically denote [+ human] entities, reflecting the cross-linguistic tendency according to which animate possessors usually precede the possessum (cf. Zifonun 2005: 47; Rosenbach 2008; O'Connor, Maling & Skarabela 2013). Kasper (2015: 91–95) gives a functional explanation for this fact: Animate possessors are potential agents and – from a cognitive perspective – language users strive to identify the causer/controller within a sentence as fast as possible.

As I have shown in this section, the development of *-s* from a morphological genitive marker towards a less bound morpheme is reflected in synchronic variation. A closer look at English and Dutch in the next section will show that we find very similar variation in older stages of these languages where the reanalysis of *-s* took place. In turn, these findings support the hypothesis that German possessive *-s* actually undergoes a similar development, albeit one that is harder to detect since we are dealing with current change in progress.

2.3   A contrastive comparison with English and Dutch

English and Dutch are chosen for a contrastive comparison with German since we are dealing with three well-described West Germanic and thus comparable languages which nevertheless show different restrictions for possessive *-s*: In Dutch the situation is very similar to German since names, kinship terms, and titles may primarily – but not exclusively – function as possessors. English on the other hand is less similar to German since the complexity of the possessor phrase

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16. There is an interesting similarity between possessive *-s* and the infinitival marker *zu* 'to' in German that Oliver Schallert pointed out to me. Both elements behave in a comparably complex way with relation to their structural scope. *-s,* which goes back to a suffix and develops towards a clitic, shows right-edge marking (e.g. *Julia-Ø und Lindas Büro* 'Julia and Linda's office'). *zu* 'to', which is of prepositional origin and currently oscillates between clitic and affix status, shows left-edge marking (e.g. *du wirst wissen, was **zu** tun und Ø lassen ist* 'you will know, what to do and what not to do'). For a detailed study on the theoretical status and diachronic development of *zu* 'to' cf. Schallert (in press).

is hardly restricted. Even though the languages have developed differently they share two crucial steps in the development of possessive -s. The first is the reduction of genitive-allomorphy in favor of invariant -s, the second is the elimination of concord within the former genitive phrase so that -s developed into a once-only marker. Of course, the change from a proper case marker towards a less bound possessive marker was not abrupt but a process that can be subdivided into many discrete steps.

Let us start with a brief description of English, where possessive -s has gone through the most radical change. It is a well-known fact that present-day English has a construction in which possession is marked once only by invariant -s with the possessor preceding the possessum (7a).[17] Even though the head noun is usually the final element within the possessor phrase (cf. Denison, Scott & Börjars 2010), postmodification of the head noun is also possible with so-called group or phrasal genitives. In this case possessive-s may attach to a non-head of any word class (7b).

(7) a.   [[the little boy]'s cat
     b.   [[the little boy] over there]'s cat

Even though the status of -s is discussed controversially, it is usually not described as a proper case marker but rather as a right edge marker or clitic (cf. e.g. Carstairs 1987; Zwicky 1987, 1988; Rosenbach 2004; Anderson 2005, 2008, 2013; Börjars et al. 2013). According to Allen (1997, 2003), this invariant marker developed from one of the genitive suffixes in earlier stages of English – and not from the possessive pronoun *his*, as Janda (1980) proposes.[18] The most common characteristics referred to when Old English -(e)s and present-day English possessive -s are contrasted are the increasing invariance of -s, the loss of agreement features and the development from head to right-edge marking (cf. Börjars et al. 2013: 145).

Looking back, we see how the transition from a proper genitive marker towards an invariant right-edge marker starts in Old English with the early decline of the case system. In Early Middle English (1100–1350), allomorphy in the nominal system vanishes and -(e)s becomes a superstable marker. In the context of paradigmatic deflexion double-marking is removed in appositional phrases ([[name-GEN + title/kinship term/profession-GEN] head noun] > [[name + title/kinship term/profession-POSS] head noun]) and the genitive reduces to a strictly adnominal case since it is no longer governed by verbs and prepositions. After

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17. As with the German *von*-construction, possession can also be expressed by means of a preposition, i.e. *of*. Here we have the reversed serialization of possessor and possessum.

18. See Ackermann (2018b) for a discussion of these two approaches and a more detailed description of the developments in the history of English.

concord in genitive appositions was lost, -(*e*)*s* could be attached only to the right-most element in DPs/NPs, but the possessor had to end in a noun. The first – rather rare – examples of group genitives can be found in texts of the late 14th century: *Þe kyng of Fraunces men* 'the king of France's men' (quoted from Allen 1997: 121). However, such complex possessors of the earliest examples suggest that the DP/NP might have been regarded as a title and thus as one (name) unit. According to Allen (2003: 11) "[i]t seems plausible that the group genitive of English started with this sort of treatment of names with more than one element as a unit for the purpose of inflection". Additionally, in late Middle English (1350–1500) old double-marking in possessor phrases with two coordinated elements is progressively abandoned ([[X-GEN + Y-GEN] head noun] > [[X + Y-POSS] head noun]). In present-day English the newer type has become prevalent (when the two NPs form a collective possessor). Finally, during the Early Modern English period (from 1500 on) the group genitive becomes more regular and gradually supersedes other options such as split genitives, where the postmodification of the *s*-marked possessor noun is placed after the possessum (e.g. *God's son of heaven*).

Obviously, there are many parallels between the development in English and German. Interestingly, it is constructions with a complex proper name unit where double-marking was removed first. That is exactly what happened (in the case of appositions, cf. Ackermann 2018a, b) and still happens (in the case of tight coordinations and historical names) in German. However, a major difference lies in the fact that paradigmatic deflexion in English took place much earlier and more radically than in German. While the superstable -*s* in German only developed within the proprial domain (there is genitive allomorphy until today for common nouns (-*en, -ens, -es, -s*)) and its spread was completed not earlier than in the 20th century, the reduction of allomorphy in English was completed already by the end of the 14th century and thus before codification took place (cf. Allen 1997: 115, 120; Scott 2014: 329).

A brief look at the developments in Dutch shows that the case system – similar to English – was lost, but that the loss took place only in the 19th/20th century, much later than in English (cf. Scott 2014: 37). During the period of deflexion, which is characterized and thus restrained by codification the former genitive marker -*s* developed into a superstable possessive marker. As in German, -*s* could temporarily attach to already weakly inflecting nouns in Middle Dutch (1150–1500, cf. Vezzosi 2000: 121). Since the 16th century -*s* is found with feminine nouns and concord between determiner and possessor noun was increasingly relinquished ([[*des*-GEN N*s*-GEN] N] > [[*de* N*s*-POSS] N]). Remarkably, in Dutch it is also partly onymic possessors consisting of title plus personal name that were the first instances of once-only right-edge marking ([[title-GEN + name-GEN] head noun] > [[title + name-POSS] head noun]). In early Modern Dutch (1600–1700)

possessive -*s* became established as a right-edge marker and can be observed with several complex possessors, such as tight coordinations and postmodified nouns. These data suggest that possessive -*s* in Dutch underwent the same development as its English counterpart. However, a look at present-day Dutch shows that -*s* is indeed similarly restricted as its counterpart in present-day German: Mainly unmodified proper nouns, titles and kinship terms may function as prenominal possessors. Animated common nouns referring to acquaintances with a co-occurring determiner (*haar broer-s beste vriend* 'her brother's best friend') are only marginally possible (cf. Scott 2014: 200–203; Vezzosi 2000: 119). Astonishingly, old and already lost double-marking on determiners and possessor nouns was restored in the 19th century and initially possible postmodification of the possessor noun became ungrammatical. According to Scott (2014), these regressions within the Modern Dutch period can be explained by extra-linguistic factors, namely the developing standardization and codification by grammarians in early Modern Dutch. Even though only remnants of the genitive existed in the 16th century, the genitive was maintained and revitalized over three centuries before it was finally removed by the orthographic reform in the beginning of the 20th century (cf. Scott 2014: 157–159). In contrast to the concordial genitive the less prestigious possessive -*s* construction with once-only marking was stigmatized.

What we learn from the history of Dutch is that case loss, codification and the emergence of possessive -*s* are closely related. In English, deflexion took place far before codification started and possessive -*s* developed naturally. German, by contrast, which is less "progressive" and highly codified, still has a (semi-intact) four case system and the least developed possessive -*s* construction.[19] However, with the loss of onymic case possessive -*s* actually begins to spread in German – with restrictions, of course – and the selection constraints for the prenominal possessor seem to become slightly loosened.

In the next section, it will be discussed how the developments in German described in this section can be modelled theoretically.

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19. Within Germanic only Icelandic has a more conservative case system than German, which is evidenced, among other properties, by the fully intact genitive. It comes as no surprise that Icelandic has no possessive -*s*. See Ackermann (2018b) for an overview.

3.   Theoretical considerations

What kind of morpheme is possessive -*s* in German, then? As mentioned above, there is a controversial discussion about the theoretical status of this marker in English.[20] The main question is whether it should be considered as an affix, a clitic or something in between. In this section I will first discuss the morphological status of German possessive -*s*. Based on the empirical findings and the discussion of the morphological status, I will also discuss the consequences that result for different (synchronic and diachronic) theories dealing with possessive -*s*.

3.1   Morphological status of possessive -*s*

Regarding English (and Mainland Scandinavian) possessive -*s,* a three-stage development with rather fuzzy transitions is often assumed (cf. Allen 1997; Börjars et al. 2013). In step one, -*s* is a proper paradigmatic genitive allomorph that develops into a phrasal marker, which maintains inflectional properties. Step two is characterized by once-only marking within the possessor phrase. Here, the -*s* can still only be attached to nominal heads. Step three is reached when -*s* isn't restricted to head attachment anymore but can occur with the rightmost element of any part of speech within the possessor phrase. This third step is obviously not yet reached in German. However, as the data discussed above show, the former genitive marker has gone through a morphological change within the last few centuries. In other words, German -*s* is currently moving towards step two. On an affix-clitic continuum possessive -*s* is still located at the affix-pole but is gaining more and more clitic-like properties. For a more fine-grained analysis of the status of -*s,* I will now consult Zwicky & Pullum's (1983) criteria.[21]

First of all, we have to distinguish between simple and special clitics according to Zwicky (1977).[22] When talking about possessive -*s,* special clitic is the relevant category. In contrast to simple clitics, these clitics (usually) do not go back to a full

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form and are syntactically freer (cf. Anderson 2005: 10). Nübling (1992: 24–34) proposes to further subdivide special clitics according to their distribution into a syntactic (S-clitics) and a morphological type (M-clitics). The former follow their own syntactic rules (e.g. Swedish possessive -*s*), whereas M-clitics exhibit a higher degree of morphological selection with respect to their host (e.g. English *n't,* which only attaches to finite auxiliaries and modal verbs).

Let us now come to the six criteria formulated by Zwicky & Pullum (1983) in order to define affixes and clitics. The first criterion is related to the *degree of selection* and states that clitics can exhibit a low degree of selection with respect to their host, while affixes exhibit a high degree of selection with respect to their stems. In German, the genitive markers -*es*/-*s* can only be attached to masculine and neuter nouns in the singular. Until the 18th century, we also find this ±-feminine dichotomy within the proprial domain. Today, possessive -*s* can regularly be attached to feminine proper names.[23] In extended possessive -*s* constructions we even find feminine non-proprial heads such as *Schwester* 'sister'. However, in German, -*s* is restricted to nominal possessor heads. This is why possessive -*s* must, according to criterion one, rather be regarded as affix. However, especially in contrast to the genitive markers -*es*/-*s*/-(*e*)*n*(*s*), the degree of selection has been loosened diachronically induced by the reanalysis of the marker.

The second criterion is concerned with *arbitrary gaps* within the paradigm which are said to be more characteristic of affixed words than of clitic groups. According to Nübling (1992: 83) this assumption does not hold since prototypical inflection is not defined by arbitrariness but by gapless paradigmaticity. Thus, arbitrary gaps within a paradigm can be seen as an indicator of deflexion (which induces defect paradigms) but they are not a useful criterion for the distinction between affixed words and clitic groups. Another aspect mentioned by Nübling (1992: 83) in the context of paradigmaticity is that different inflectional classes are typical – though not strictly necessary – for inflection. Thus, the invariance of -*s* is rather an argument against its status as inflection proper.

The third criterion is concerned with *morphophonological idiosyncrasies*, which are more characteristic of affixed words than of clitic groups, according to Zwicky & Pullum (1983). A textbook example for inflectional markers that caused stem alternation due to their phonology are umlaut inducing suffixes with an /i/ in Old High German. Through regressive partial distance assimilation, the stem vowel

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23. With the exception of names ending in /s/, which cannot be combined with the invariant marker due to a phonetic restriction: sequences of two non-syllabic /s/ elements cannot be realized phonetically (and the syllabic inflectional variant /ə(n)s/ is ruled out for proper names). According to Zwicky & Pullum (1983) such phonological idiosyncrasies are more typical for inflection.

was palatalized: *gast-i > gest-i* 'guests' (cf. e.g. Wegera, Waldenberger & Lemke 2018: 106–108). A look at weak and mixed genitive allomorphs, which were present until the 20th century, shows that the syllabic endings *-en* and *-ens* affected the stem of names ending in a vowel (*Eva*.NOM, *Evens*-GEN) and led to a suppression of the final sound neutralization and a re-syllabification with names ending in a voiced obstruent (*Fer.di.nan*[*t*].NOM, *Fer.di.nan.*[*d*]*en*-GEN). The invariant *s*-marker, on the other hand, does not affect the stem phonologically because it is strictly non-syllabic.[24] However, the fact that also other peripheral nouns such as non-integrated loan words or abbreviations are only marked with non-syllabic *-s* (*des Shitstormes-GEN, ʔ*des WLANes*-GEN 'wireless local area network') shows that the development towards invariant *-s* must be ascribed to the aforementioned principle of morphological schema constancy rather than to a shift towards a clitic. Thus, the reduction of rather inflectional properties such as morphophonological idiosyncrasies must not necessarily be seen as an indication for clear-cut clitic-status.

Criterion four is related to *semantic idiosyncrasies*. According to Zwicky & Pullum (1983), they are more characteristic of affixed words than of clitic groups because occasionally the meaning of the whole (affixed) word is not composed regularly from the meanings of its parts. In this context, Zwicky & Pullum (1983: 505) discuss the English example *last* (etymologically a superlative form from *late*), "which has the syntax of a superlative but an idiosyncratic range of meaning" (e.g. *last words,* which are final, not just late). However, these examples are not convincing because we are simply dealing with lexicalizations of inflected words. A comparable case mentioned by Nübling (1992: 84–86) are German adverbs such as *nachts* 'at night', *falls* 'if', etc., which are no longer nouns in the genitive case but rather invariant adverbs (*des Nachts*-GEN (NOUN) > *nachts* (ADVERB)) or conjunctions (*des Falls*-GEN (NOUN) > *falls* (CONJUNCTION)). Regular inflection – or comparison in the case of *late, later, latest* – is not blocked for the respective nouns (*die Geheimnisse der Nacht,* the secrets of the-GEN night.GEN). Thus, I agree with Nübling (1992) that semantic idiosyncrasies are neither an indication for inflection nor for clitic groups. This is why this criterion is not helpful for a distinction between these two categories. A better semantic criterion is that inflectional affixes always build 'meaningful' units with their stems, i.e. the information expressed by the affix has direct relevance for the stem that it is attached to. Thus, concord, which is more typical (but not necessary) for inflection than for clitic groups, reflects the smaller scope of the affix (cf. Nübling 1992: 86). For instance, the phrasal *-s* in

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24. The only (rare) exceptions are monosyllabic names ending in /s/, to which the old syllabic marker *-ens* occasionally can be attached. Here we have re-syllabification alone with no other affection of the stem.

Modern-English group genitives such as *the boy I met yesterday's dog* has a wider scope than the older (agreeing) genitive affix and the semantic relation between -*s* and the adverbial base *yesterday* is not very close. In German, the scope of possessive -*s* is relatively small since it can only be attached to rather non-complex possessor phrases.

With criterion five, Zwicky & Pullum (1983) establish a syntactic distinguishing criterion, which says that *syntactic rules can affect affixed words, but cannot affect clitic groups*, i.e. words are invisible for syntactic operations.[25] Indeed, the wide variety of hosts to which clitics such as the English '*s* (< *is*) or '*ve* (< *have*) attach indicates that words combined with one of these clitics are syntactically not treated as a unit while inflected nouns, verbs, or adjectives regularly are. Concerning possessive -*s*, it has been observed that its phrasal properties are presently increasing. While proper affixes such as plural markers change the position w.r.t their base, possessive -*s* remains on the right edge of the possessor phrase if two coordinated collective NPs change their position (cf. also Norde 2006: 220–221 for Swedish):

(8) a. Schokolade und Rose-*n*
         'chocolate and roses'
     b. Rose-*n* und Schokolade /*Rose und Schokolade-*n*
         'roses and chocolate'

(9) a. Brink und Reckermann-*s* Sieg
         'Brink and Reckermann's victory'
     b. Reckermann und Brink-*s* Sieg /*Reckermann-*s* und Brink Sieg
         'Reckermann und Brink's victory'

Here, we can observe a nascent change of possessive -*s* that has become less affixal since the attachment has become slightly weaker. However, this change is only gradual because German possessive -*s* is still highly restricted compared to its English or Swedish counterparts.

The sixth and last of Zwicky & Pullum's (1983) criteria says that *clitics can attach to material already containing clitics*, but affixes cannot. This can be illustrated by English cliticized auxiliaries; e.g. *I'd've done it.* Since German possessive -*s* only attaches to nominal heads, which never contain enclitics, it cannot attach to material already containing clitics. Norde (2006: 222), who discusses the status of Swedish possessive -*s,* gives an example where phrase-marking -*s* is attached to inflected (not cliticized) nouns: *ox-a-nna-s* [ox-MASC.PL.GEN-the.MASC.

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25. However, there are some phenomena such as phrasal compounds that challenge the principle of lexical integrity (cf. e.g. Meibauer 2007 or Pafel 2015 and the literature cited there).

PL.GEN-S-POSS] 'oxen's'. Here, a noun would be inflected for case (and thus the same grammatical category) twice if -*s* were to be considered an affix, which would seem very strange according to Norde (2006: 222). Thus, she regards phrase marking -*s* as not on the same level as the older genitive suffix. As mentioned above, in German -*s* was attached to already weak inflected names in a transitional period (-*en*-GEN > -*en*-GEN-*s*-GEN). However, this cannot be regarded as an argument for clitic status since such double-suffixes also occur with undoubted instances of the genitive (e.g. *d-es*-GEN *Automat-en*-GEN, *d-es*-GEN *Automat-en-s*-GEN 'the automaton's'). Thus, the last criterion is rather indicative of an affixal status of -*s*. Table 8 sums up the findings.

Table 8. Zwicky & Pullum's (1983) partly modified criteria applied to German possessive -*s*

	Inflectional marker	s-clitic
1. Degree of selection	✓	✓
2. Arbitrary gaps	–	–
inflectional classes (cf. Nübling 1992)		(✓)
3. Morphophonological idiosyncrasies	–	–
4. Semantic idiosyncrasies	–	–
scope (cf. Nübling 1992)	✓	
5. Syntactic rules	✓	✓
6. Attachment to material already containing clitics	–	–
Double case marking (cf. Norde 2006)	(✓)	

In conclusion, the discussion of Zwicky & Pullum's (1983) criteria has shown that German -*s* currently possesses more inflectional than clitic properties. Thus, it cannot be regarded as a prototypical M-clitic. Nevertheless, we have seen that German possessive -*s* cannot be treated as a prototypical inflectional element either. In accordance with Börjars et al. (2013: 146) we have to "recognize that affix and clitic are idealized, 'pure' categories and that the behavior of most bound elements will be messier than that". German possessive -*s* – similar to possessive -*s* in older stages of English or Swedish – can best be described as an inflectional phrase marker that attaches to specific constituents. However, the development of -*s* in other Germanic languages is directional with the -*s* gradually moving from the affix pole to the clitic pole. Hence, the observable changes in German indicate that possessive -*s* develops further towards stronger morphological independence. This development is depicted schematically in Figure 3.
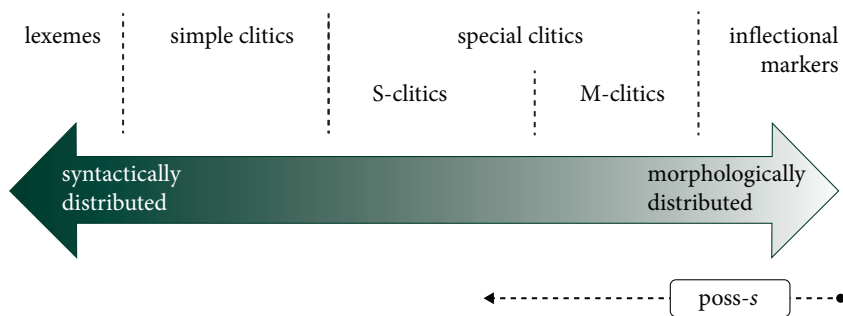
Figure 3. German possessive *-s* between inflectional and clitic marker

3.2   Consequences for synchronic syntactic modelling

As discussed in Ackermann (2018a), we find different formal syntactic approaches for the possessive *-s* construction in the recent literature. On the one hand, there are approaches that categorize proper names in prenominal possessive constructions not as nouns, but as possessive adjectives (cf. Lindauer 1998; Gallmann 1996; Hentschel 1994) or possessive determiners and sometimes even as D-heads (cf. Demske 2001; Hartmann & Zimmermann 2003). On the other hand, scholars such as Bücking (2012) and Rauth (2014) analyze possessors as elements within the specifier position of the DP, which allows to treat prenominal proper name possessors as N-elements. Weiß (2008) and Fuß (2011) propose an analysis for German possessive *-s* similar to the English ones, with the *s*-marker being interpreted as a clitic which fills the position of the D-head. As the Duden-Grammar (2016: 982) remarks, no generally accepted analysis exists to date.

Regarding the first approach, Demske (2001) claims that there has been a semantically driven change followed by a formal reanalysis during the Early New High German period. Within this change, proper name possessors, which formerly filled the specifier position of the DP (10a) have been reanalyzed as D-heads (10b). However, in the postnominal position proper names are still regarded as part of the nominal system.

(10) a. $[[\text{Wilhelm-s}]_{\text{SPEC}} [[\emptyset]_{\text{D°}} [\text{Mutter}]_{\text{N'}}]_{\text{D'}}]_{\text{DP}}$
      b. $[[\emptyset]_{\text{SPEC}} [[\text{Wilhelm-s}]_{\text{D°}} [\text{Mutter}]_{\text{N'}}]_{\text{D'}}]_{\text{DP}}$

Analyzing the possessor as D-head explains some crucial restrictions within the DP: The noun cannot co-occur with a determiner, only D-elements, i.e. proper names, possessive pronouns as well as article words can fill the possessor position, and these elements are distributed complementarily. Though this analysis appears convincing

at first glance, there are some shortcomings. First, the assumption of proper names as categorical hybrids with the respective categorization depending on the name's syntactic position is – at least from a morphological perspective – problematic.[26] Additionally, the analysis is too restrictive since newly arising possessors such as the ones discussed in Section 2.2 are not compatible with it. However, a formal analysis of German possessive-*s* should provide a solution for them.

Against the backdrop of these new possessive -*s* constructions, approaches according to which possessors fill the specifier position of the DP seem more promising. Fuß (2011: 35–37) provides an analysis for *s*-constructions according to which it is not the proper name that was reanalyzed as D°-head but the former genitive suffix -*s*, which he analyses as a clitic (11).

(11) $[[\text{Wilhelm}]_{\text{SPEC}} \, [[\text{-s}]_{\text{D}°} \, [\text{Mutter}]_{\text{N}'}]_{\text{D}'}]_{\text{DP}}$

In this proposed DP-structure, the article position D° is filled/blocked by the *s*-marker in present-day German. Thus, it is a logical conclusion that determiners and possessors are distributed complementarily. An advantage of this analysis is that we do not have to assume a hybrid status of proper names. Additionally, it allows for more complex phrases since the possessor fills the specifier and not the head position. This analysis has not, however, been without its critics. Rauth (2014: 355), for instance, remarks that analyzing the *s*-suffix in D° provides no explanation of why postmodification of the possessor is ungrammatical in German.[27] As the analysis of the theoretical status of -*s* in the previous section has shown, a more severe shortcoming of this approach lies in its underlying assumption that -*s* is a proper clitic. Since there was no categorial shift from suffix to clitic in German it proves mistaken to analyze -*s* as D°-head – at least within the framework of lexicalist theories. Assuming that bound morphemes fill in syntactic positions without their base would, after all, conflict with the lexicalist hypothesis according to which syntactic transformations operate on syntactic constituents alone (cf. Booij 2010: 220). If one does not want to contradict this hypothesis, -*s* has to fill the specifier position together with its base (cf. (10a)). However, this formalism does not account for the gradual change the *s*-marker went through.

Since modular models have certain disadvantages in dealing with gradual change, possessive -*s* might best be modelled within the framework of Construction Morphology. For Dutch, Booij (2010: 216–222) proposes an analysis that can be

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26. For a discussion of different approaches to the categorization of proper nouns cf. Ackermann (2018b: 45–52).

27. According to Fuß (2011: 36) there are syntactic selection restrictions that emanate from the D-head – restrictions that we do not have in English.

seen as a CxG equivalent to the aforementioned DP-analysis.[28] Possessive -*s*, which marks the phrase as definite (and thus adds another function), is part of the productive construction that exhibits several semantic properties for the prenominal possessor. Booij (2010: 221) proposes the constructional schema in (12). The conditions for the subconstructions are adapted to the German data discussed in Section 2.[29]

(12) $[[... [x\text{-}s]_N]_{NPi} ...N_j]_{NPk} \leftrightarrow [\text{the} ...N_j \text{ of } NP_i]_k$
   NP_i has one of the following forms:
   (i) a (simplex or complex) proper name, or a coordination of instances of such expressions
   (ii) (substandard): a quantifying (pro)noun denoting human beings
   (iii) nouns that can function as forms of address, (in the substandard) optionally preceded by a possessive pronoun

The variable *x* in (12) stands for the rightmost possessor noun. Thus, it can be expressed that -*s* is a bound morpheme that is phonologically part of the phrase-final noun (cf. Booij 2010: 221).[30] According to Booij (2010: 222) the possessive -*s* construction is a supreme example for the necessity of the notion 'construction' in morphology (my emphasis; TA):

> The implication of this schema is that syntactic constructions may refer directly to the presence of a specific morpheme: *the -s is no longer an inflectional morpheme* but marks an NP as having a determiner function. It is therefore not surprising that one finds the label '*s*-construction' in the literature. Since the -*s* is 'trapped' in this construction, it leads to construction dependent morphology: *the distribution of nouns ending in -s is no longer regulated by general principles of inflectional marking but is determined by a specific syntactic construction.* Such facts show that the notion 'construction' is indispensable for a correct account of the distribution of bound morphological elements.

In sum, the construction morphology approach seems very plausible since it accounts for the fact that -*s* is neither a proper suffix nor a clitic and thus hard to categorize. Nevertheless, this point can simultaneously be formulated as criticism. By

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28. In order to recognize the fact that prenominal possessors function as definite determiners, Booij (2010) proposes the term 'definite -*s* construction'.

29. These conditions have a rather descriptive character in that they define subconstructions of (12) that share the defining properties of the possessive -*s* construction. According to Booij (2010: 221), the "constructional schema directly expresses under what conditions a […] NP can function as the definite determiner of a noun phrase".

30. On the right of the double arrow in schema (12) the meaning (i.e. the definiteness interpretation) of the construction is specified.

treating elements that are hard to categorize as constructions one evades a concrete analysis by inventing a new label. However, since we are dealing with ongoing language change a simple categorization is not possible here. Therefore, the definition of an *-s* construction in combination with the formulated subconditions seems to be the most adequate theoretical model for the synchronic data.

Of course, in my empirical analysis I am generalizing about individuals (e.g. by only looking at (conceptually) written data without distinguishing between the regional background of the speakers). Thus, a great deal of the variability can be attributed to inter-individual variation. A reviewer remarks that a look at the individuals' I-Languages might show that the situation is not as fuzzy as described since it is possible that every speaker has its own I-Grammar where *-s* has a categorical status. However, both the historical corpus data and the data from the completion task indicate that there is also a considerable amount of intra-individual variation as well. Regarding the diachronic corpus data, the author Gottfried Arnold is an illustrative example for intra-individual variation (within one text):

(13) a. Hertzog-*s* Moritz-*en*   bruder
          'duke-GEN Moritz-GEN brother'   [arnold_ketzerhistorie02_1700:383]
      b. Hertzog-*s* Moritz Handlung
          'duke-GEN Moritz action'   [arnold_ketzerhistorie02_1700:386]
      c. bei Hertzog Moritz-*ens* hoffräthen
          'at   duke   Moritz-GEN councillors'
                                          [arnold_ketzerhistorie02_1700:388]

Furthermore, the results of the completion task (see 2.2) indicate that we also find intra-individual variation in present-day German. Not all speakers consistently mark either both names or only the second one with *-s* in close coordinations – some of them vary. Thus, a single speaker does not seem to treat *-s* categorically within her/ his I-grammar. That indicates that variation is not (only) a result of generalizations about individuals (from different regions, of different age and gender, etc.).

In the next section, I will discuss the implications for diachronic modelling.

3.3   Implications for diachronic modelling

The development of English and Swedish possessive *-s* has been analyzed in various frameworks of language change. Drawing on the German data, I want to discuss whether we are dealing with degrammaticalization, constructionalization or exaptation.

3.3.1   *Degrammaticalization*

The development of -*s* from an affix towards a clitic in Swedish is prominently discussed by Norde (2009, 2011) as an instance of degrammaticalization or, more precisely its subtype deinflectionalization, which can be defined as follows:[31]

> Degrammaticalization is a composite change whereby a gram in a specific context gains in autonomy or substance on more than one linguistic level (semantics, morphology, syntax, or phonology).   (Norde 2011: 475)

> Deinflectionalization is a composite change whereby an inflectional affix in a specific linguistic context gains a new function, while shifting to a less bound morpheme type.   (Norde 2011: 482)

An affix that develops into a clitic can thus be seen as a counter-directional change on the morphosyntactic path proposed by Hopper & Traugott (1993: 7) in the context of grammaticalization theory:

> content item > grammatical word > clitic > inflectional affix

The underlying assumption for this subtle change of a bound morpheme (affix) towards another bound morpheme (clitic) is that bound morphemes exhibit different degrees of grammaticality depending on their type. According to Norde (2009: 152–160), inflectional affixes are 'more grammatical' than clitics. The latter are said to be less bound, do not form paradigms and are less obligatory. Besides the shift towards less boundedness, deinflectionalization entails a gain in function (cf. Norde 2011: 482). For instance, possessive -*s* gains a determiner function in English, Swedish, Dutch and German (cf. Rosenbach 2004).

Like grammaticalization processes, degrammaticalization can be divided into smaller aspects. In terms of Lehmann's (2015 [1982]: 129–188) parameters it is *paradigmaticity* which is defining for deinflectionalization. *Deparadigmatization* takes place because inflectional suffixes cease to form part of inflectional paradigms (cf. Norde 2011: 483). This is exactly what we can observe relating to German possessive -*s*.

With regard to integrity there is no change on the phonological level and -*s* does not recategorialize or acquire a lexical meaning. However, possessive -*s* gains the new function 'determiner', which is a kind of *resemanticization*.[32]

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31. It is important to note that degrammaticalization is not simply the reverse of grammaticalization. For instance, possessive -*s* developed gradually from a more towards a less bound morpheme type, but the chance is low that -*s* is degrammaticalizing further into a free grammatical marker. Thus, in contrast to grammaticalization, degrammaticalization is not a chain phenomenon. For a discussion of the main similarities and differences between grammaticalization and degrammaticalization cf. Norde (2011: 476–477).

32. Demske (2001) even assumes a reanalysis of *s*-marked proper nouns as elements of the determiner system.

According to Norde (2011: 483), paradigmatic variability which is reduced within grammaticalization processes increases in deinflectionalization (*deobligatorification*). Concerning the expression of possession, German provides several alternative constructions such as a periphrasis with the preposition *von* 'of' (*der Hund von Tim* 'The dog of Tim') or (in non-standard German) the possessive dative (*dem Tim sein Hund,* lit. 'the Tim his dog', 'Tim's dog'). However, assuming paradigmatic variability for possessive *-s* seems questionable to me. It is rather a deobligatorification of the genitive case as a marker of possession. Thus, the development of possessive *-s* is somehow epiphenomenal.

The parameter *scope*, which reduces in grammaticalization is an inconclusive parameter in deinflectionalization (cf. Norde 2011: 483). Concerning possessive *-s* in English and Swedish we can indeed observe an (counter-directional) expansion of scope from word to phrase level. For German possessive *-s* on the other hand this *scope expansion* is more subtle (and only observable with tight coordinations).

When it comes to Lehmann's parameter of bondedness, deinflectionalizations behave consistently, since it "implies a shift to a 'weaker' type of morpheme boundary" (Norde 2011: 483). In terms of German possessive *-s* we can observe such a shift from stronger to weaker boundary even though the *severance* is more subtle than with its Germanic counterparts. Since possessive *-s* is strictly non-syllabic, the boundary between the stem and the agglutinating possessive marker is clear-cut – which is not necessarily the case in inflecting languages with stem modulation such as German (cf. Harnisch 2001). In written German, the weaker boundary is additionally marked via morphographic apostrophes, which do not play a role with postpositioned concordial genitives (cf. Scherer 2010).

The last parameter is concerned with syntagmatic variability and plays no role in deinflectionalization since *flexibilization* is ruled out by definition.

The discussion of Lehmann's parameters has shown that many subtle steps in the development of German possessive *-s* can be detected that contradict a grammaticalization process in terms of directionality, even though the observed change is much smaller than it is in English or Swedish. Nonetheless, the change can indeed be described as directional in the 'reverse' direction since a grammatical item becomes gradually less grammaticalized. Since this change has not yet come to an end, we are dealing with degrammaticalization *in progress*.

It is worth mentioning that the concept of degrammaticalization as such and the analysis of possessive *-s* within the framework have not been without criticism.[33] Opponents mainly challenge the status of possessive *-s* as a proper clitic, which would be the prerequisite for deinflectionalization (cf. e.g. Börjars 2003;

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33. For a more general discussion of the concept of degrammaticalization as such cf. Ackermann (2018b).

Vincent & Börjars 2010). As discussed in Section 3.1, German possessive -*s* is indeed not a proper clitic and even less clitic-like than its Germanic counterparts. Nonetheless, in German we can also observe a gradual change from a genitive suffix towards a less bound element and thus the change is definitely a directional one. The question is how much change is necessary to talk about degrammaticalization? As mentioned above, affixes and clitics have to be considered as pure idealized categories. The same holds true for categorial shifts in language change. Thus, I think that it is legitimate to regard even subtle but nonetheless directional changes on the token level as an instance of degrammaticalization (in progress).[34]

3.3.2   *Constructionalization*

Traugott and Trousdale (2013) propose an approach to language change based on Construction Grammar that is mainly concerned with the emergence of constructions (constructionalization) and their change (constructional change). Crucially, this approach does not focus on the morpheme (as with (de)grammaticalization) but on constructions as form-meaning pairings. Constructionalization (Cxzn) as a dynamic process is defined as follows:

> *Constructionalization* is the creation of form$_{new}$-meaning$_{new}$ (combinations of) signs. It forms new type nodes, which have new syntax or morphology and new coded meaning, in the linguistic network of a population of speakers. It is accompanied by changes in degree of schematicity, productivity, and compositionality. The constructionalization of schemas always results from a succession of micro-steps and is therefore gradual. New micro-constructions[35] may likewise be created gradually, but they may also be instantaneous. Gradually created micro-constructions tend to be procedural, and instantaneously created micro-constructions tend to be contentful.[36]   (Traugott & Trousdale 2013: 22)

Within this framework, the development of possessive -*s* is described as an instance of grammatical constructionalization with an increase both in schematicity and

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34. As Rosenbach (2004) mentions, one has to distinguish between the more abstract change of types and the concrete change of tokens. With regard to the genitive we observe a regular grammaticalization process on the more abstract type level (affix > zero). On the concrete token level, it is only the possessive -*s* that gained a new determiner function and thus took a side road.

35. These micro-constructions are the most concrete types. Meso- and macro-constructions are more general.

36. *Procedural* and *contentful* refers to the type of concept. 'Procedural' material has abstract ('grammatical') meaning that signals linguistic relations and perspectives. 'Contentful' – or traditionally 'lexical' – material can be used referentially. Since CxG puts lexicon and grammar on a continuum, the distinction between procedural and contentful components is gradient (cf. Traugott & Trousdale (2013: 12–13).

productivity and a simultaneous reduction of compositionality (cf. Trousdale & Norde 2013). Regarding the German *s*-construction, schematicity definitely increases since possessive *-s* is nearly the only marker in the singular within the onymic domain and thus particularly prominent. Schematicity or generality also increases because prenominal *s*-marked possessors were reanalyzed as functional elements of the determiner system.

Concerning the parameter of productivity, the data discussed in Section 2 have shown that we can definitely observe an increase here. While the concordial genitive marker *-s* was only one allomorph within onymic inflection until early New High German it can attach to feminine names and even non-proprial nouns today.

When it comes to the third parameter of compositionality, or more precisely analyzability,[37] the expressions vary depending on the level of investigation. When we look at the micro-level (i.e. the concrete *s*-construction) we can observe an increase in analyzability, which is untypical of constructionalizations, since *-s* is less bound and thus better separable from its stem. However, on the macro-level (i.e. the more general determiner-construction) compositionality (in the semantic sense) is reduced as expected since the article system gets more heterogeneous (cf. Trousdale & Norde 2013: 41–42). In sum, the observable changes fit with the assumptions of constructionalization. As Trousdale and Norde (2013) state, degrammaticalization and constructionalization are not mutually exclusive. Rather, we are dealing with complementary approaches focusing on different levels (morpheme vs. construction). As with synchronic modelling, a theory that focusses on the construction as form-meaning pairing seems to be adequate for modelling the change of German possessive *-s,* since the morpheme type changes are more gradual than categorial. However, a point of criticism is that Traugott & Trousdale's (2013) approach is rather diagnostic and less prognostic than a theory of language change that implies directionality. The isolated investigation of a construction says nothing about statistically low-frequency changes as the one described here, since deinflectionalization (incidentally, a quite rarely occurring phenomenon) is characterized as a regular constructional change that patterns with regular grammaticalization. Nevertheless, this approach accounts for the graduality in the change of possessive *-s* and can thus be seen as a welcome supplement to the concept of deinflectionalization.

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37.   The term 'compositionality' is used by Traugott and Trausdale (2013) as a kind of hypernym and covers also 'analyzability'. However, as also Börjars, Vincent and Walkden (2015: 374–378) note, a distinction should be made here since 'compositionality' refers to the semantic level while 'analyzability' refers to the form. When it comes to possessive *-s,* the latter is the relevant level.

3.3.3   *Exaptation*

Finally, I want to discuss if the change from a genitival affix towards a less bound element could be described as an instance of exaptation.[38] As mentioned above, possessive -s is often discussed as a prominent example of deinflectionalization. Nevertheless, in the literature we sometimes find the view that we are dealing with an instance of exaptation (cf. e.g. Scott 2014: 278–294; Booij 2010: 212–216). Exaptation is a concept borrowed from evolutionary biology. It was Lass (1990) who brought it into the linguistic discourse for the description of language change phenomena where the new function of an element is not immediately related to its former function. In short, we have an old form whose function is converted into a new one (cf. Simon 2010). Thus, when it comes to possessive -s, we have to ask if we are dealing with a new function. This question can clearly be answered with 'no', even though there is no consensus in the literature on whether it is necessary to have a new grammatical category emerge or if it suffices to merely have a new function arise which is unconnected to the old one. Since possession has already been a core function of the genitive, the emergence of possessive -s brings up neither a new category nor a new usage. Also, the new determiner function that prenominal possessors undertake is not new to German. Thus, exaptation is ruled out even according to the less restrictive definition.

4.   Conclusion

The historical and synchronic data presented in this paper have shown that possessive -s constructions cannot be simply described as regular prenominal genitives for present-day German. The invariant s-marker that has its origin in the strong masculine onymic declension class spread interparadigmatically over four centuries. Despite radical syntagmatic deflexion within the onymic domain, -s is stable and has become a prominent marker for a specific possessive construction. A comparison with the developments in English and Dutch has shown that the discrete steps in the development of possessive -s are very similar in all three languages – but German possessive -s is the most restricted one.

From a theoretical point of view my morphological analysis of the s-marker has revealed that its status in present-day German is even fuzzier than previously assumed. This analysis thus challenges existing syntactic models that take a clitic status of the s-marker for granted. Against this backdrop, construction morphology

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38. Exaptation as a model of language change is not less controversial than degrammaticalization. For a recent overview, see Van de Velde & Norde (2016).

seems to be most suitable for modelling the synchronic data. When it comes to language change, a construction-based approach is no less appropriate. However, analysing the observable change as constructionalization is more diagnostic than prognostic. A morpheme-based theory – in our case degrammaticalization – turns out to be a good supplement since it can account for the fact that we are dealing with a rare case of counter-directional change in progress.

Corpora

DECOW2012, DECOW2014 <http://corporafromtheweb.org/>
Deutsches Textarchiv (DTA) <http://deutschestextarchiv.de/>

References

Ackermann, Tanja. 2018a. From genitive inflection to possessive marker? The development of German possessive *-s* with personal names. In *Germanic Genitives* [Studies in Language Companion Series 193], Tanja Ackermann, Horst J. Simon & Christian Zimmer (eds), 189–230. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.193.08ack

Ackermann, Tanja. 2018b. *Grammatik der Namen im Wandel. Diachrone Morphosyntax der Personennamen im Deutschen* [Studia Linguistica Germanica 134]. Berlin: De Gruyter.

Ackermann, Tanja & Zimmer, Christian. 2017. Morphologische Schemakonstanz. Eine empirische Untersuchung zum funktionalen Vorteil nominalmorphologischer Wortschonung im Deutschen. In *Sichtbare und hörbare Morphologie* [Linguistische Arbeiten 565], Nanna Fuhrhop, Karsten Schmidt & Renata Szczepaniak (eds), 145–176. Berlin: De Gruyter. https://doi.org/10.1515/9783110528978-006

Allen, Cynthia L. 1997. The origins of the group genitive in English. *Transactions of the Philological Society* 95: 111–131. https://doi.org/10.1111/1467-968X.00015

Allen, Cynthia L. 2003. Deflexion and the development of the genitive in English. *English Language and Linguistics* 7: 1–28. https://doi.org/10.1017/S1360674303211023

Anderson, Stephen R. 2005. *Aspects of the Theory of Clitics*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199279906.001.0001

Anderson, Stephen R. 2008. The English "group genitive" is a special clitic. *English Linguistics* 25(1): 1–20. https://doi.org/10.9793/elsj1984.25.1

Anderson, Stephen R. 2013. The marker of the English "Group Genitive" is a special clitic, not an inflection. In *Morphosyntactic Categories and the Expression of Possession* [Linguistics Today 199], Kersti Börjars, David Denison & Alan K. Scott (eds), 193–217. Amsterdam: John Benjamins. https://doi.org/10.1075/la.199.08and

Askedal, John Ole. 2003. Grammaticalization and the historical development of the genitive in Mainland Scandinavian. In *Papers from the 15th International Conference on Historical Linguistics* [Current Issues in Linguistic Theory 237], Barry J. Blake & Kate Burridge (eds), 21–32. Amsterdam: John Benjamins.

Askedal, John Ole. 2008. "Degrammaticalization" versus typology: Reflections on a strained relationship. In *Grammatical Change and Linguistic Theory: The Rosendal Papers* [Linguistics Today 113], Thórhallur Eythórsson (ed.), 45–77. Amsterdam: John Benjamins. https://doi.org/10.1075/la.113.03ask

Booij, Geert. 2010. *Construction Morphology*. Oxford: OUP.

Börjars, Kersti. 2003. Morphological status and (de)grammaticalisation: The Swedish possessive. *Nordic Journal of Linguistics* 26(2): 133–163. https://doi.org/10.1017/S0332586503001069

Börjars, Kersti, Denison, David, Krajewski, Grzegorz & Scott, Alan. 2013. Expression of possession in English. The significance of the right edge. In *Morphosyntactic Categories and the Expression of Possession* [Linguistics Today 199], Kersti Börjars, David Denison & Alan K. Scott (eds), 123–148. Amsterdam: John Benjamins. https://doi.org/10.1075/la.199.05bor

Börjars, Kersti, Vincent, Nigel & Walkden, George. 2015. On constructing a theory of grammatical change. *Transactions of the Philological Society* 113(3): 363–382. https://doi.org/10.1111/1467-968X.12068

Bücking, Sebastian. 2012. Kompositional flexibel. *Partizipianten und Modifikatoren in der Nominaldomäne* [Studien zur Deutschen Grammatik 83]. Tübingen: Stauffenburg.

Campe, Petra. 2013. Word order restrictions in adnominal constructions: the case of the German pre- versus postnominal genitive. In *The Genitive* [Case and Grammatical Relations Across Languages 5], Anne Carlier & Jean-Christophe Verstraete (eds), 255–297. Amsterdam: John Benjamins. https://doi.org/10.1075/cagral.5.10cam

Carstairs, Andrew. 1987. Diachronic evidence and the affix-clitic distinction. In *Papers from the 7th International Conference on Historical Linguistics* [Current Issues in Linguistic Theory 48], Anna Giacalone Ramat, Onofrio Carruba & Giuliano Bernini (eds), 151–162. Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.48.12car

Dammel, Antje & Nübling, Damaris. 2006. The superstable marker as an indicator of categorial weakness? *Folia Linguistica* 40: 97–113. https://doi.org/10.1515/flin.40.1part2.97

Demske, Ulrike. 2001. *Merkmale und Relationen. Diachrone Studien zur Nominalphrase im Deutschen* [Studia Linguistica Germanica 56]. Berlin: De Gruyter. https://doi.org/10.1515/9783110811353

Denison, David, Scott, Alan K. & Börjars, Kersti. 2010. The real distribution of the English "group genitive". *Studies in Language* 34(3): 532–564. https://doi.org/10.1075/sl.34.3.02den

Duden. 2016. *Die Grammatik* [Duden, Vol. 4]. Berlin: Dudenverlag.

Fuß, Eric. 2011. Eigennamen und adnominaler Genitiv im Deutschen. *Linguistische Berichte* 225: 19–42.

Gallmann, Peter. 1996. Die Steuerung der Flexion in der DP. *Linguistische Berichte* 164: 283–314.

Gries, Stefan T. 2014. Frequency tables: Tests, effect sizes, and explorations. In *Corpus Methods for Semantics: Quantitative Studies in Polysemy and Synonymy* [Human Cognitive Processing 43], Dylan Glynn & Justyna A. Robinson (eds), 365–389. Amsterdam: John Benjamins. https://doi.org/10.1075/hcp.43.14gri

Harnisch, Rüdiger. 2001. *Grundform- und Stamm-Prinzip in der Substantivmorphologie des Deutschen. Synchronische und diachronische Untersuchung eines typologischen Parameters* [Germanistische Bibliothek 10]. Heidelberg: Winter.

Hartmann, Katharina & Zimmermann, Malte. 2003. Syntactic and semantic adnominal genitive. In *(A-)symmetrien – (A)-symmetries. Beiträge zu Ehren von Ewald Lang*, Claudia Maienborn (ed.), 171–202. Tübingen: Stauffenburg.

Hentschel, Elke. 1994. Entwickeln sich im Deutschen Possessiv-Adjektive? Der *-s*-Genetiv bei Eigennamen. *In Satz – Text – Diskurs. Akten des 27. Linguistischen Kolloquiums, Münster 1992*, Vol. 1 [Linguistische Arbeiten 312], Susanne Beckmann & Sabine Frilling (eds), 17–25. Tübingen: Niemeyer. https://doi.org/10.1515/9783111566658.17

Herslund, Michael. 2001. The Danish *-s* genitive: From affix to clitic. *Acta Linguistica Hafniensia* 33(1): 7–18. https://doi.org/10.1080/03740463.2001.10412193

Hopper, Paul & Traugott, Elizabeth C. 1993. *Grammaticalization*. Cambridge: CUP.

Janda, Richard. 1980. On the decline of declensional systems: the loss of OE nominal case and the ME reanalysis of *-es* and *his*. In *Papers from the 4th International Conference on Historical Linguistics* [Current Issues in Linguistic Theory 14], Elizabeth Traugott, Rebecca Labrum & Susan C. Shepard (eds), 243–252. Amsterdam: John Benjamins.

Kasper, Simon. 2015. Linking syntax and semantics of adnominal possession in the history of German. In *Language Change at the Syntax-Semantics Interface* [Trends in Linguistics – Studies and Monographs 278], Chiara Gianollo, Agnes Jäger & Doris Penka (eds), 57–99. Berlin: De Gruyter Mouton.

Koptjevskaja-Tamm, Maria. 2001. Adnominal possession. In *Language Typology and Language Universals*, Vol. 2 [Handbook of Linguistics and Communication Science 20.2], Martin Haspelmath, Ekkehard König, Wulff Oesterreicher & Wolfgang Raible (eds), 960–970. Berlin: De Gruyter.

Lass, Roger. 1990. How to do things with junk: Exaptation in language evolution. *Journal of Linguistics* 26: 79–102. https://doi.org/10.1017/S0022226700014432

Lehmann, Christian. 2015 [1982]. *Thoughts on Grammaticalization* [Classics in Linguistics 1], 3rd edn. Berlin: Language Science Press. https://doi.org/10.26530/OAPEN_603353

Lindauer, Thomas. 1998. Attributive genitive constructions in German. In *Possessors, Predicates and Movement in the Determiner Phrase* [Linguistics Today 22], Artemis Alexiadou & Chris Wilder (eds), 109–140. Amsterdam: John Benjamins. https://doi.org/10.1075/la.22.06lin

Meibauer, Jörg. 2007. How marginal are phrasal compounds? Generalized insertion, expressivity, and I/Q-interaction. *Morphology* 17(2): 233–259. https://doi.org/10.1007/s11525-008-9118-1

Neef, Martin. 2006. Die Genitivflexion von artikellos verwendbaren Eigennamen als syntaktisch konditionierte Allomorphie. *Zeitschrift für Sprachwissenschaft* 25(2): 273–299. https://doi.org/10.1515/ZFS.2006.010

Norde, Muriel. 1997. The History of the Genitive in Swedish. A Case Study in Degrammaticalization. PhD dissertation, University of Amsterdam.

Norde, Muriel. 2006. Demarcating degrammaticalization: The Swedish *s*-genitive revisited. *Nordic Journal of Linguistics* 29(2): 201–238. https://doi.org/10.1017/S0332586506001582

Norde, Muriel. 2009. *Degrammaticalization*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199207923.001.0001

Norde, Muriel. 2011. Degrammaticalization. In *The Oxford Handbook of Grammaticalization*, Bernd Heine & Heiko Narrog (eds), 475–487. Oxford: OUP.

Nowak, Jessica & Nübling, Damaris. 2017. Schwierige Lexeme und ihre Flexive im Konflikt: Hör- und sichtbare Wortschonungsstrategien. In *Sichtbare und hörbare Morphologie* [Linguistische Arbeiten 565], Nanna Fuhrhop, Renata Szczepaniak & Karsten Schmidt (eds), 113–144. Berlin: De Gruyter. https://doi.org/10.1515/9783110528978-005

Nübling, Damaris. 1992. *Klitika im Deutschen. Schriftsprache, Umgangssprache, alemannische Dialekte* [Script Oralia 42]. Tübingen: Narr.

Nübling, Damaris. 2012. Auf dem Weg zu Nicht-Flektierbaren: Die Deflexion der deutschen Eigennamen diachron und synchron. In *Nicht-flektierte und nicht-flektierbare Wortarten* [Linguistik – Impulse und Tendenzen 47], Björn Rothstein (ed.), 224–246. Berlin: De Gruyter. https://doi.org/10.1515/9783110276619.224

Nübling, Damaris. 2014. Sprachverfall? Sprachliche Evolution am Beispiel des diachronen Funktionszuwachses des Apostrophs im Deutschen. In *Sprachverfall? Dynamik – Wandel – Variation* [Jahrbuch 2013 des Instituts Für Deutsche Sprache], Albrecht Plewnia & Andreas Witt (eds), 99–123. Berlin: De Gruyter. https://doi.org/10.1515/9783110343007.99

O'Connor, Catherine, Maling, Joan & Skarabela, Barbora. 2013. Nominal categories and the expression of possession. A cross-linguistic study of probabilistic tendencies and categorical constraints. In *Morphosyntactic Categories and the Expression of Possession* [Linguistics Today 199], Kersti Börjars, David Denison & Alan K. Scott (eds), 89–121. Amsterdam: John Benjamins. https://doi.org/10.1075/la.199.04oco

Pafel, Jürgen. 2015. Phrasal compounds are compatible with Lexical Integrity. *STUF – Language Typology and Universals* 68(3): 263–280.

Paul, Hermann. 1917. *Deutsche Grammatik*, Band II. Teil III: *Flexionslehre*. Halle (Saale): Niemeyer.

Plank, Frans. 2011. Differential time stability in categorial change. Family names from nouns and adjectives, illustrated from German. *Journal of Historical Linguistics* 1(2): 269–292. https://doi.org/10.1075/jhl.1.2.05pla

Rauth, Philipp. 2014. Die Entstehung von s-Plural und "Sächsischem Genitiv". Familien- und Personennamen als Brückenkonstruktionen. *Beiträge zur Geschichte der deutschen Sprache und Literatur (PBB)* 136(3): 341–373. https://doi.org/10.1515/bgsl-2014-0033

Rosenbach, Anette. 2004. The Englisch *s*-genitive: A case of degrammaticalization? In *Up and Down the Cline – The Nature of Grammaticalization* [Typological Studies in Language 59], Olga Fischer, Muriel Norde & Harry Perridon (eds), 73–96. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.59.05ros

Rosenbach, Anette. 2008. Animacy and grammatical variation – Findings from English genitive variation. *Lingua* 118(2): 151–171. https://doi.org/10.1016/j.lingua.2007.02.002

Schäfer, Roland & Bildhauer, Felix. 2012. Building large corpora from the web using a new efficient tool chain. *Proceedings of the LREC 2012*, 20–27 May 2012, 486–493. Istanbul.

Schallert, Oliver. In press. Portrait of the clitic as a young affix: Infinitivisches zu im Niemandsland zwischen Morphologie und Syntax. In *Syntax aus Saarbrücker Sicht 3*. Beiträge der SaRDiS-Tagung zur Dialektsyntax [Zeitschrift für Dialektologie und Linguistik – Beihefte], Augustin Speyer & Julia Hertel (eds). Stuttgart: Steiner.

Scherer, Carmen. 2010. Das Deutsche und seine dräuenden Apostrophe. Zur Verbreitung von *'s* im Gegenwartsdeutschen. *Zeitschrift für germanistische Linguistik* 38: 1–24. https://doi.org/10.1515/zgl.2010.002

Scott, Alan K. 2014. *The Genitive Case in Dutch and German. A Study of Morphosyntactic Change in Codified Languages* [Brill's Studies in Historical Linguistics 2]. Leiden: Brill.

Simon, Horst J. 2010. "Exaptation" in der Sprachwandeltheorie. Eine Begriffspräzisierung. In *Prozesse sprachlicher Verstärkung. Typen formaler Resegmentierung und semantischer Remotivierung* [Linguistik – Impulse & Tendenzen 37], Rüdiger Harnisch (ed.), 41–57. Berlin: De Gruyter.

Spencer, Andrew & Luís, Ana R. 2012. *Clitics. An Introduction*. Cambridge: CUP. https://doi.org/10.1017/CBO9781139033763

Steche, Theodor. 1927. *Die neuhochdeutsche Wortbiegung unter besonderer Berücksichtigung der Sprachentwicklung im 19. Jahrhundert.* Breslau: Hirt.

Traugott, Elizabeth C. & Trousdale, Graeme. 2013. *Constructionalization and Constructional Changes.* Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199679898.001.0001

Trousdale, Graeme & Norde, Muriel. 2013. Degrammaticalization and constructionalization: two case studies. In *Current Trends in Grammaticalization Research. Special issue* [Language Sciences 36], Muriel Norde, Alexandra Lenz & Karin Beijering (eds), 32–46.

Van de Velde, Freek & Norde, Muriel. 2016. Exaptation. Taking stock of a controversial notion in linguistics. In *Exaptation and Language Change* [Current Issues in Linguistic Theory 336], Muriel Norde & Freek Van de Velde (eds), 1–35. Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.336.01vel

Vezzosi, Letizia. 2000. The history of the genitive in Dutch: An evidence of the interference between language standardisation and spontaneous drift. *Studia Germanica Posnaniensia* 26: 115–147.

Vincent, Nigel & Börjars, Kersti. 2010. Grammaticalization and models of language change. In *Gradience, Gradualness and Grammaticalization* [Typological Studies in Language 90], Elizabeth Closs Traugott & Graeme Trousdale (eds), 279–299. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.90.14vin

Wälchli, Bernhard. 2005. *Co-Compounds and Natural Coordination.* Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199276219.001.0001

Wegera, Klaus-Peter, Waldenberger, Sandra & Lemke, Ilka. 2018. *Deutsch diachron. Eine Einführung in den Sprachwandel des Deutschen*, 2nd edn. [Grundlagen der Germanistik 52]. Berlin: Erich Schmidt.

Weiß, Helmut. 2008. The possessor that appears twice. Variation, structure and function of possessive doubling in German. In *Microvariation in Syntactic Doubling* [Syntax and Semantics 36], Sief Barbiers, Olaf Koeneman, Maria Lekakou & Margreet van der Ham (eds), 381–401. Bingley: Emerald.

Wurzel, Wolfgang Ullrich. 1987. System-dependent morphological naturalness in inflection. In *Leitmotifs in Natural Morphology* [Studies in Language Companion Series 10], Wolfgang Dressler, Willi Mayerthaler, Oswald Panagl & Wolfgang Ullrich Wurzel (eds), 59–96. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.10.22wur

Zifonun, Gisela. 2001. Eigennamen in der Narrenschlacht. Oder: Wie man *Walther von der Vogelweide* in den Genitiv setzt. *Sprachreport* 3: 2–5.

Zifonun, Gisela. 2005. Der Dativ ist dem Genitiv sein Tod: zur Analyse des adnominalen possessiven Dativs. In *Deutsche Syntax: Empirie und Theorie. Symposium in Göteborg 13.–15. Mai 2004* [Göteborger Germanistische Forschungen 46], Franz Josef d'Avis (ed.), 25–51. Göteborg: Acta Universitatis Gothoburgensis.

Zwicky, Arnold. 1977. *On Clitics.* Bloomington IA: Indiana University Linguistics Club.

Zwicky, Arnold. 1987. Suppressing the Zs. *Journal of Linguistics* 23: 133–148. https://doi.org/10.1017/S0022226700011063

Zwicky, Arnold. 1988. Direct reference to heads. *Folia Linguistica* 22(3–4): 397–404.

Zwicky, Arnold & Pullum, Geoffrey K. 1983. Cliticization vs. inflection: English *n't. Language* 59(3): 502–513. https://doi.org/10.2307/413900

Analyzing language change through a formalist framework

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This article serves as a case study on using formal morphological models to analyze systematic language change processes in inflectional morphology. By drawing on data from four Germanic varieties at two points in time (Old Swedish, Övdalian, Old High German and Visperterminen Alemannic) and applying the concepts of *paradigm linkage theory* to them, we are able to exemplarily monitor and model changes concerning case syncretism in nominal inflection in a way that is more differentiated than previous analyses. Thus, while the pure empirical results on Germanic morphology already are revealing by themselves, we also provide both a diachronic extension to formal morphology as well as finer granularity and appropriateness of description to historical linguistics as a whole.

1.   Motivation and overview

It is the central aim of this article to show to what extent formal models can be used to shed light on language change processes that cannot easily be motivated and explained otherwise: The traditional view on paradigms combines information on case, number, gender, and inflection class in just one paradigm. But, as we intend to show, change processes do not start at the level of these combined paradigms – they start on the level of single classes. Combined paradigms thus are not fit for respective analyses, as they blur or block the view on systematic changes. As an example for illustrating this, we particularly concentrate on the case inflection of nouns. In the following chapters, we use Stump's (2016) model of an interaction of three different paradigms: content paradigm, form paradigm, and realized paradigm.

By using data from two change processes – from Old Swedish to Övdalian (spoken in northern Dalarna, Sweden) and from Old High German to Highest Alemannic (Visperterminen, canton of Valais, Switzerland) –, we will show that in distinguishing content, form, and realized paradigm – and comparing their

respective mappings – it is not only possible to describe the language systems with more precision but also to exactly localize, describe and model language change. Thus, we will demonstrate that Stump's theory is suited for modeling language change, although it was originally aimed at analyzing languages from a synchronic and typological perspective.

The choice of these two rather peripheral Germanic varieties is due to their specific sociolinguistic conditions and their ensuing internal structure. Both varieties can be considered to be isolated: Small language communities in rather remote places with dense social networks, high social stability, and few language contacts outside the language community (Trudgill 2011: 146). Additionally, they have not been subject to standardization and codification processes.[1] The changes in these varieties are thus far more likely to be internally motivated rather than externally. Övdalian and Visperterminen Alemannic are not only comparable from a sociolinguistic point of view. They also share several core linguistic characteristics. They stem from OS resp. OHG which have primary stress on the first root vowel, but they preserve full vowels in unstressed syllables. At the same time, the inflectional marking of morphosyntactic features, such as case and gender, is reduced in Övdalian (Ö) and Visperterminen Alemannic (VA) compared to Old Swedish (OS) and Old High German (OHG). The data used for the subsequent analyses are based on neogrammarian descriptions (OS: Noreen 1904; Ö: Levander 1909; OHG: Braune 2004; VA: Wipf 1910). Thus, the datasets are highly comparable, both regarding the time periods as well as methodological decisions during data collection.

2.   Theory: Formal inflectional models

In Chapter 3, we will apply Gregory Stump's formal theory of a syntax-morphology interface, as outlined particularly in Stump (2001, 2016). This current chapter provides a brief recapitulation of those aspects of the theory that are vital to understanding the applications following.

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1.   Due to massive contact and standardization processes, it would be short-sighted to label modern Standard Swedish or modern Standard High German as fully natural descendants of (conceptually oral) Old Swedish or Old High German dialects. There is a considerably clearer historical continuity between old dialects and new dialects than between old dialects and new codified standard languages (cf. Elspaß 2012: 213–220; Pröll & Kleiner 2016: 209–211). Strictly spoken, one should nevertheless be aware that Old Swedish and Old High German are not attested through manuscripts in the areas of modern day Övdalian or Visperterminen Alemannic (and neither was their coverage limited to these areas alone), thus nobody can guarantee a perfect fit. Still, this has to be considered as the more reasonable proxy situation for documenting 1200 years of change processes.

Inferential-realizational conceptions of morphology share the notion that form and function need to be treated separately. This is based on the observation that every logical possibility of a mismatch between form and function is attested in languages (for an overview see for example Anderson 1992; Spencer 2004; Stump 2001):

- one meaning & multiple exponence
- one meaning & no form
- one form & no meaning
- one form & multiple meanings

Theories that assume a one-to-one relationship between form and meaning work well for what can be called "canonical" inflectional paradigms, "a typological idealization relative to which the inflectional paradigms of natural languages may be compared", as Stump (2016: 3) assesses; this "morpheme-based approach to inflection would suffice if inflectional paradigms were always canonical" (Stump 2016: 3). His observation (for a detailed account see Stump 2016: 31–42, 103) that this is in fact very rare calls for a more differentiated model, based on the interface of three levels of paradigms, that is capable of capturing the manifold deviations from this idealization.

In this model (see Figure 1), the *content paradigm* serves as the nexus to syntax/semantics: It contains the morphosyntactic information required by syntactic contexts. The respective *content cells*[2] thus are pairings of a lexeme L (in the narrower, semantic sense of the term) with an instance of the complete set of syntactic functions σ (that is, the grammatical meaning), displayed as $\langle L,\sigma \rangle$. This set σ is complete if it contains a value for all grammatical categories of the lexeme class (for a Latin noun, this could correspond for example to the values {ABLATIVE, SINGULAR, FEMININE}, as Latin syntax requires information on case, number and gender for nouns) – it carries no information about the actual word form (i.e. about its phonological shape) whatsoever. The *realized paradigm* is the word form (w) that ultimately emerges, showing a set of morphosyntactic features τ, in the following formalized as $\langle w,\tau \rangle$; it is subject to phonological phenomena (such as final devoicing or sandhi). In addition to that, Stump (2016) assumes a third paradigm – the *form paradigm* – that is purely morphomic: As an interim stage between pure function and pure realization, it combines the concrete roots Z belonging to the lexeme with the set of morphosyntactic information τ that is going to be realized as $\langle Z,\tau \rangle$, thus defining the morphosyntactic properties which are realized through realization rules in the realized paradigm. The necessity for this additional paradigm

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2.   Here, *cells* are defined as "form-content pairings" (Stump 2016: 10).

becomes apparent if we consider non-canonical instances, i.e. content-form mismatches. Roots and stems need to be specifically inventorized due to phenomena such as stem allomorphy or suppletion, which are based on different roots for the same lexeme. The stipulation of a morphosyntactic feature set τ in contrast to its set of syntactic functions σ is motivated by the occurrence of phenomena like deponency of Latin verbs (where passive forms express active functions, see Stump 2016: 197–201) or Germanic preterite-present verbs (that employ preterite ablaut forms for present functions).
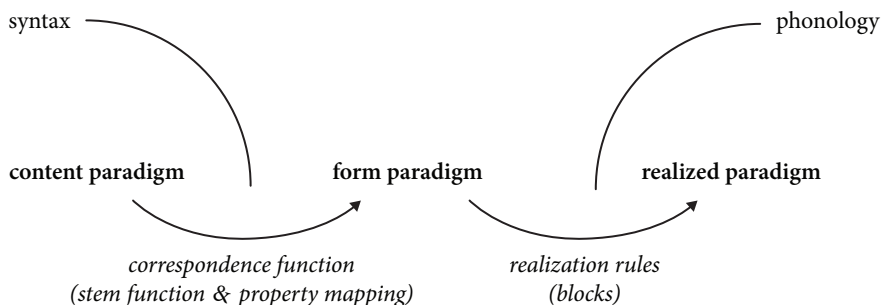
syntax · · · phonology

content paradigm **form paradigm** **realized paradigm**

correspondence function *realization rules*
(stem function & property mapping) *(blocks)*

Figure 1. Visualization of paradigm linkage: paradigms and functions

Thus, the content paradigm interfaces with syntax; inversely, syntax only has access to the content paradigm and has no direct access to all processes involving form. The realized paradigm is subject to processes that interface with the concrete exponents, for example general language-wide phonological rules or analogical leveling. The form paradigm, however, does not interface directly with either syntax or phonology, but connects with the other two paradigms.

The connections between these paradigms can be described as mappings. These mappings from one paradigm onto the other are carried out by specific functions: The content paradigm is linked to the form paradigm through *correspondence function* (*Corr*), *stem function* (*Stem*), and *property mapping* (*pm*), whereas form paradigm and realized paradigm are linked by *rules of exponence* or *realization rules* (*RR*) ordered in *blocks*. In canonical cases, these functions do nothing more than map one set of cells (in one paradigm) to another set of cells (in another paradigm) in an isomorphic way: This is the case in straightforward agglutinative systems with a one-to-one relationship between form and meaning. However, "the definition of an inflectional paradigm's content is logically independent of the definition of its form" (Stump 2016: 105).

First, let's focus on the mapping between content and form cell. The *correspondence function* maps all content cells ⟨L,σ⟩ to their respective form cells: ⟨Z,τ⟩ =

Corr($\langle L,\sigma \rangle$). Z is generated through the *stem function* Z = Stem($\langle L,\sigma \rangle$) that provides the relevant stem forms for the respective morphosyntactic properties. The set τ is generated through *property mapping*, where $\tau = pm(\sigma)$. Thus, combining these individual sub-functions into one, we can grasp the entire process *content paradigm* → *form paradigm* with the equation Corr$\langle L,\sigma \rangle = \langle$Stem($\langle L,\sigma \rangle$),$pm(\sigma)\rangle$. In canonical instances, we can assume a default rule of this correspondence function where $pm(\sigma) = \sigma$ and there is only one stem for L, resulting in $\langle L,\sigma \rangle = \langle Z,\sigma \rangle$.[3]

We shall briefly illustrate these functions with some examples. For the stem function, consider the comparison of the Luxembourgish adjective ᴠɪʟʟ 'much' (in predicative use) displayed in Figure 2: While the positive form *vill* is unremarkable, the comparative and superlative forms *méi* and *am meeschten* feature another stem (*me*) that is introduced through suppletion. This change of stem is due to the application of a respective stem function, the different stems are stored in the form paradigm.

content paradigm

$\langle$ᴠɪʟʟ, {positive}$\rangle$	$\langle$ᴠɪʟʟ, {comparative}$\rangle$	$\langle$ᴠɪʟʟ, {superlative}$\rangle$
↕	↕	↕
$\langle$vill, {positive}$\rangle$	$\langle$me, {comparative}$\rangle$	$\langle$me, {superlative}$\rangle$

form paradigm

Figure 2. Stem function concerning comparison of Luxembourgish predicative ᴠɪʟʟ

The property mapping of ᴠɪʟʟ is $pm(\sigma) = \sigma$. Figure 3, displaying the verbal inflection of the Norwegian (Bokmål) verbs ʟʏᴋᴋᴇs 'succeed' and sɴᴀᴋᴋᴇ 'speak', demonstrates a different scenario: While most regular Norwegian verbs form active voice using the suffix *-er* and passive voice using *-(e)s*[4] (e.g. sɴᴀᴋᴋᴇ 'speak', showing the infinitive *snakke*, present active form *snakker* and present passive form *snakkes*), the class of s-verbs such as ʟʏᴋᴋᴇs have what at first glance looks like a passive form (here: *lykkes*) for active content (as well as for the infinitive). Thus, $pm(\sigma) \neq \sigma$ in these instances – the property mapping links the properties of the content paradigm (i.e., what is required by syntax and semantics) to another set of form properties (i.e., what is provided by morphology proper).

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3. For a full account of what criteria need to be fulfilled in fully canonical inflection, we refer to Stump (2016: 113).

4. Norwegian (Bokmål) verbs also form analytic passive constructions using auxiliary *blir*, but this is of no further consequence for the example.
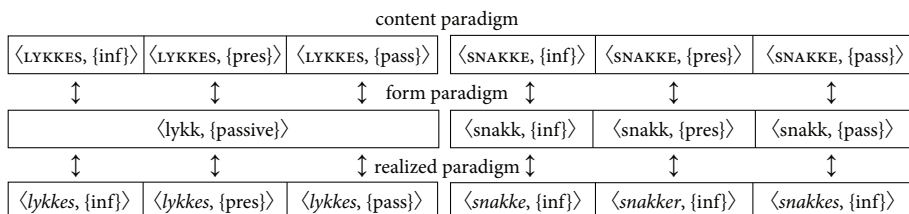
content paradigm

⟨ʟʏᴋᴋᴇs, {inf}⟩	⟨ʟʏᴋᴋᴇs, {pres}⟩	⟨ʟʏᴋᴋᴇs, {pass}⟩	⟨sɴᴀᴋᴋᴇ, {inf}⟩	⟨sɴᴀᴋᴋᴇ, {pres}⟩	⟨sɴᴀᴋᴋᴇ, {pass}⟩
↕	↕	↕ form paradigm ↕		↕	↕
⟨lykk, {passive}⟩			⟨snakk, {inf}⟩	⟨snakk, {pres}⟩	⟨snakk, {pass}⟩
↕	↕	↕ realized paradigm ↕		↕	↕
⟨*lykkes*, {inf}⟩	⟨*lykkes*, {pres}⟩	⟨*lykkes*, {pass}⟩	⟨*snakke*, {inf}⟩	⟨*snakker*, {inf}⟩	⟨*snakkes*, {inf}⟩

Figure 3. Property mapping for Norwegian s-verb ʟʏᴋᴋᴇs (left) and regular weak verb
sɴᴀᴋᴋᴇ (right)

Neither content nor form paradigm contain word forms. These are generated
through realization rules and constitute the realized paradigm. Realization rules
are bundled in the form of blocks, "such that rules belonging to the same block
compete for the same position in the sequence of rule applications defining a word's
inflectional form" (Stump 2001: 33). The generalized form of a realization rule is
X , C , κ → f(X), "where X is a variable over stems, C is a class of stems, κ is a prop-
erty constraint and *f* is an operation on stems" (Stump 2016: 48). In other words:
If a criterion κ is satisfied, the input of a stem (and its property set) X that is part
of a class of stems C yields the output of a phonological form $f(X)$. For example,
Klingon verb morphology features the realization rule X , V , {1pl} → *ma*X (that is
true for the class of intransitive verbs V, C = V); thus, the verb stem *Qong* 'sleep' has
a realized cell *maQong* for first person plural. The plural forms for German nouns
that belong to the same class as *Mutter* 'mother' are realized according to the rule
X , N , {pl} → Ẍ (for convenience we use Ẍ for vowel fronting), generating umlaut
plural forms such as *Mütter*.[5]

Consider the realization rules necessary for generating the realized paradigm
for the German noun ᴡᴀʟᴅ 'forest' (Figure 4), where the singular is not overtly
coded except for genitive (*Wald*, *Wald-es*), and the plural is expressed both using
umlaut as well as suffixation (e.g. *Wäld-er* for nominative, accusative and genitive
plural, *Wäld-er-n* for dative plural):

Block I:	Block II:	Block III:
X,N, [{pl}] → Ẍ	X,N, [{sg}∧{gen}] → X*s*	X,N, [{pl}∧{dat}] → X*n*
	X,N, [{pl}] → X*er*	

Figure 4. Realization rules for German noun ᴡᴀʟᴅ

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5.   Thus, the theory does not need to differentiate between concatenative and nonconcatenative
inflection (see also Stump 2001: 9–10).

When there is no specific rule for a property set in a block (as, in this case, for nom/dat/acc singular), the *Identity Function Default Rule* applies: $[n : \langle X,\sigma \rangle] \rightarrow \langle X,\sigma \rangle$. The realized form is nothing but the stem itself in these cases (cf. Stump 2001: 53, 2016: 51–52).[6] The example above also illustrates why blocks are crucial: The realization rule for *-er* (Block II) applies to the umlauted stem before the realization rule for *-n* (Block III), defining the word form *Wäld-er-n* (**Wäld-n-er*).

Inflection classes, then, consist of a specific set of realization rules in a specific order. Of course, single realization rules for one class C may also be in paradigmatic opposition to each other. According to Pāṇini's principle, the more narrowly applicable rule in a block overrides the one(s) with wider scope (cf. Stump 2001: 10, 21–23, 33, 52).

3.   Synchronic and diachronic analysis

Drawing on this formalization, this section analyzes the most important changes from Old Swedish (OS) to Övdalian (Ö), and from Old High German (OHG) to Visperterminen Alemannic (VA) based on Stump (2016). The changes can precisely be located and their causes identified within a language, i.e. OS/Ö on the one hand, and OHG/VA on the other hand. At the same time, the changes in OS/Ö can be compared to those in OHG/VA. The section starts with discussing some issues that arise when languages and language change are analyzed based on traditional paradigms (3.1). Subsequently, the changes from OS to Ö and from OHG to VA are analyzed with respect to the three paradigms Stump (2016) postulates: content paradigm (3.2), realized paradigm (3.3) and form paradigm (3.4).

3.1   Traditional inflection classes

Traditionally, the OS noun system can be seen to incorporate 22 inflection classes, based on different stems, and three genders (Noreen 1904: 280–334). This is shown in Table 1.

However, several inflection classes merged already in OS. For example, the masculine a- and ia-stems do not show any differences in their inflection (Table 2). Thus, the traditional categorization of nouns can be reduced: If two inflection classes show the same set of suffixes and stem alternations, they can be merged. For OS this condenses the 22 inflection classes (according to Noreen 1904) to 21

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6.   This can be seen as a way of modeling underspecification.

Table 1. Old Swedish inflection classes (not reduced)

Inflection class		Gender
strong	a-stem	masculine
		neuter
	ja-stem	masculine
		neuter
	ia-stem	masculine
		neuter
	ō-stem	feminine
	jō-stem	feminine
	iō-stem	feminine
	i-stem	masculine
		feminine
	u-stem	masculine
weak	an-stem	masculine
		neuter
	ōn-, ūn-stem	feminine
	īn-stem	feminine
consonant stem	monosyllable	masculine
		masculine
		feminine
	r-stem	masculine
		feminine
	nd-stem	masculine

as portrayed in Table 2, for OHG the 24 inflection classes (according to Braune 2004) to 19.

Thus, the classification based on different types of stems (as seen in Table 1) is inadequate: OS does not follow a fully transparent system of 'inflection class = stem' anymore. The same holds true for Ö, OHG and VA. The reduced paradigms of the four varieties are in the appendix: Table 16 for OS, Table 17 for Ö, Table 18 for OHG, and Table 19 for VA.

But neither of these representations – reduced or not – is overly useful if we are interested in a systematic examination of morphosyntactic features such as CASE, NUMBER, and GENDER as well as their encoding. These traditional representations combine information about case, number, gender, and inflection class, and thus blur or even prevent the view on systematic changes regarding these morphosyntactic features. Furthermore, case, number and gender are categories which must be morphologically encoded in some languages. However, changes in case for example may be caused by changes in the syntax (changes in the argument structure of verbs), morphology (e.g. extension, paradigm leveling) or phonology.

Table 2. Old Swedish noun paradigm (reduced)

				Singular				Plural			
				nom	acc	dat	gen	nom	acc	dat	gen
strong	a-stem	masc	*fish*	*fisk-er*	*fisk*	*fisk-e*	*fisk-s*	*fisk-ar*	*fisk-a*	*fisk-om*	*fisk-a*
		neut	*ship*	*skip*	*skip*	*skip-i*	*skip-s*	*skip*	*skip*	*skip-um*	*skip-a*
	ja-stem	masc	*textile*	*væv-er*	*væf*	*væf*	*væf-s*	*væfi-ar*	*væfi-a*	*væfi-om*	*væfi-a*
		neut	*rock island*	*skær*	*skær*	*skær-i*	*skær-s*	*skær*	*skær*	*skæri-om*	*skæri-a*
	ia-stem	masc	*ore*	*øri-r*	*øre*	*øre**	*øri-s*	*ør-ar*	*ør-a*	*ør-om*	*ør-a*
		neut	*memory*	*minne*	*minne*	*minne*	*minni-s*	*minne*	*minne*	*minn-om*	*minn-a*
	ō-stem	fem	*husk*	*agn*	*agn*	*agn*	*agn-ar*	*agn-ar*	*agn-ar*	*agn-om*	*agn-a*
	jō-stem	fem	*blade*	*æg*	*æg*	*æg*	*ægi-ar*	*ægi-ar*	*ægi-ar*	*ægi-om*	*ægi-a*
	iō-stem	fem	*heath-land*	*hēþ*	*hēþ-e*	*hēþ-e*	*hēþ-ar*	*hēþ-ar*	*hēþ-ar*	*hēþ-om*	*hēþ-a*
	i-stem	masc	*law*	*rætt-er*	*ræt*	*ræt, rætt-e*	*rætt-ar, ræs*	*rætt-ir*	*rætt-e*	*rætt-om*	*rætt-a*
		fem	*ride*	*færþ*	*færþ*	*færþ*	*færþ-ar*	*færþ-ir*	*færþ-ir*	*færþ-om*	*færþ-a*
	u-stem	masc	*son*	*son, sun*	*son, sun*	*syn-i*	*son-ar, sun-ar*	*syn-ir*	*syn-i*	*son-um, sun-um*	*son-a, sun-a*
weak	an-stem	masc	*fear*	*agh-i*	*agh-a*	*agh-a*	*agh-a*	*agh-ar*	*agh-a*	*agh-um*	*agh-a*
		neut	*eye*	*øgh-a*	*øgh-a*	*øgh-a*	*øgh-a*	*øgh-un*	*øgh-un*	*øgh-um*	*øgh-na*
	ōn-, ūn-stem	fem	*week*	*vik-a*	*vik-u*	*vik-u*	*vik-u*	*vik-ur*	*vik-ur*	*vik-um*	*vik-na, vik-u*
cons. stem	monosyll.	masc	*man*	*maþ-er, maň*	*man*	*mann-e*	*man-s*	*mæn*	*mæn*	*mann-om*	*mann-a*
		masc	*foot*	*fōt-er*	*fōt*	*fōt-e, fōt-e*	*fōt-ar*	*fōt-er*	*fōt-er*	*fōt-om*	*fōt-a*
		fem	*book*	*bōk*	*bōk*	*bōk*	*bōk-ar*	*bø̄k-er*	*bø̄k-er*	*bōk-om*	*bōk-aa*
	r-stem	masc	*father*	*faþ-ir*	*faþ-ur*	*faþ-ur, fæþ-eř*	*faþ-ur(s)*	*fæþ-er*	*fæþ-er*	*fæþ-r-om*	*fæþ-r-a*
		fem	*mother*	*mōþ-"ir*	*mōþ-or*	*mōþ-or*	*mōþ-or(s)*	*mø̄þ-er*	*mø̄þ-er*	*mø̄þ-r-om*	*mø̄þ-r-a*
	nd-stem	masc	*farmer*	*bōnd-a*	*bōnd-e*	*bōnd-a*	*bōnd-a*	*bōnd-er*	*bōnd-er*	*bōnd-om*	*bōnd-a*

*-e (dative singular marker) is suffixed to the stem *ørV*, resulting in the word form *øre*.

Only a framework that distinguishes different parts of the grammar is apt to disentangle cause and effect in language change. Additionally, also paradigm-internal changes affect very different parts of the inflectional morphology; for example, paradigm-internal changes can trigger analogies, mergers of inflection classes, changes in the structure of a word form (e.g. merged or non-merged coding of number and case, loss or preservation of a stem suffix). Traditional representations are only lucid with regards to inflection classes, which are already on their way out as a transparent system in OS and OHG (e.g. numerous assumed inflection classes show the same set of affixes, thus they collapse into one inflection class). Finally, it is a truism that changes in a paradigm (used here as a theory independent term) may not only affect different parts of the paradigm, but other parts of the language system as well and vice versa: Loss of tense (e.g. simple past in Alemannic dialects) or case (e.g. genitive) as well as phonological and syntactic changes have consequences for morphology as will be shown in the subsequent sections.

While changes in the inflection are not easily documented (and much less explained) by traditional inflection class tables, we can circumvent these issues by using Stumps (2016) model of distinguishing three different types of paradigms, namely content, form, and realized paradigm (see Section 2). This model enables us not only to describe the language systems with more precision but also to exactly localize, describe and model language change.

3.2   Content paradigms

Following Stump (2016), we can postulate content paradigms for the four varieties. OS, OHG, and VA display the same content paradigm (Table 3a), while Table 3b represents the deviating system of Ö. These content paradigms are true for every single lexeme of these varieties, regardless of its gender or inflection class.

Table 3. Content paradigms

m or f or n	singular	plural		m or f or n	singular	plural
nominative				nominative		
accusative				accusative		
dative				dative		
genitive			→	possessive		

Table 3a. Content paradigm for   Table 3b. Content paradigm for Ö
OS, OHG, and VA

As can be seen, OS, OHG, and VA syntax distinguishes between four cases, two numbers, and three genders. Thus, no changes can be observed from OHG to VA at the level of the content paradigm. Ö, however, shows a different paradigm:

The interesting difference to OS is the change from the genitive case to a syntactic function/relation 'possessive'. This loss (or rather shift) of the genitive is not due to changes in the morphology, e.g. syncretisms or the loss of suffixes encoding genitive. In OS, the genitive is syncretized with other cases only in very few inflection classes: genitive plural is syncretized with the accusative plural in the a-, ja-, and ia-stems; the genitive singular with the accusative and dative singular in the nd-stems and weak inflection (see Table 1 above). Additionally, the genitive allomorphs are not lost due to phonological changes, as for example -*a* and -*u* (encoding genitive in OS) are preserved in Ö as markers for dative singular. The OS genitive suffix -*s* is reanalyzed as a possessive marker in Ö and agglutinated to the dative form in the singular as well as in the plural: e.g. *kall* man.INDEF.NOM.SG, *kall-um* man-DAT.PL, *kall-um-es* man-DAT.PL-POSS (cf. Åkerberg 2012: 121; Dahl & Koptjevskaja-Tamm 2006: 64–66).[7] This loss of the genitive is a syntactic change, namely at the level of the argument structure, as Övdalian verbs only select accusative or dative objects. We can, thus, exactly identify the source of the change (syntax) affecting the morphological system. However, syntactic processes have no access to how or where functions are encoded – there is a content element for possessive that syntax can refer to, independent of concrete realizations (-*s*).

3.3   Realized paradigms

The realized paradigm is the level where changes in phonology can trigger changes in morphology. For example, many Germanic languages have undergone phonological processes that centralized full vowels in unstressed syllables. This could influence how grammatical categories are encoded. Note, however, that there is no straightforward connection between changes in the phonological encoding of categories and the loss or preservation of morphological and syntactic categories: While Standard Swedish as well as Standard German show centralized vowels in unstressed syllables, only Standard Swedish lost the morphological encoding of direct and indirect objects (except in pronouns referring to humans), and the

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7.   Also modern Standard Swedish has agglutinating traits in the noun inflection (cf. Braunmüller 1999: 47):

	singular	plural
– definite	*flick-a*	*flick-or*
+ definite	*flick-a-n*	*flick-or-na*
possessive	*flick-a-n-s*	*flick-or-na-s*

genitive is lost (only possessive is marked), whereas Standard German maintains the morphological encoding for an accusative, dative, and genitive object (even though with reduced phonological resources in the nouns and adjectives compared to OHG; case is mainly marked on the determiners). Unquestionably, the centralization of unstressed vowels did influence the case marking system. However, this is not part of a straightforward and chronologically linear process explaining all the changes in inflectional morphology – change processes in the case system should always be seen as part of a complex interplay of factors, involving phonology, syntax and morphology (cf. Allen 2006 for English, Enger 2013 for Norwegian dialects, Baechler & Pröll 2018 for Standard Swedish, Standard German, Övdalian, and Visperterminen Alemannic).

The opposite case is found in VA and Ö: The maintenance of full vowels in unstressed syllables with simultaneous loss of case (loss of the genitive in Ö, a syntactic change affecting the morphology, see Section 3.2), and reduction/loss of case marking (at the level of the form and realized paradigm). Changes in the realized paradigm can be due to phonological changes, but also to genuine realized paradigm changes (e.g. paradigm leveling, extension). In the following, realized paradigm changes in VA and Ö will be discussed, namely changes in the structure of the word form and in the encoding of morphosyntactic categories. The realized paradigm corresponds to what is called reduced paradigms in Section 3.1. An inflection class consists of a specific set of realization rules; two inflection classes differ from one another in at least one realization rule. All realized paradigms of the four varieties are displayed in the appendix (Tables 16–19).

First, changes in the structure of the word are analyzed: For OS, five blocks can be assumed, containing the following realization rules: Block A for umlaut, Block B for /i/ (only ja-/jō-stems), Block C for suffixes encoding plural only, Block D for portmanteau suffixes for number and case, Block E for the genitive singular suffix (only r-stems). Note that most inflection classes do not have all these positions, e.g. many inflection classes have no umlaut. If there is no realization rule in a specific block for an inflection class, the Identity Function Default rule applies (Stump 2001: 53). In Ö, the word structure is simplified to two blocks, namely one for the number/case suffixes, and one for the possessive (*kall-um-es* man-DAT.PL-POSS). OHG and VA have the same word structure: Block A for umlaut, Block B for plural suffixes, Block C for case/number suffixes (*lamb* lamb.NOM.SG, *lemb-ir-um* lamb-PL-DAT.PL, Braune 2004: 188; *chrut* herb.NOM.SG, *chrit-er-u* herb-PL-DAT.PL, Wipf 1910: 124). An important change in VA is that umlaut can encode plural without any additional suffix, something that was not possible in OHG (*chopf* head.NOM.SG, *chepf* head.NOM.PL, Wipf 1910: 122). However, this does not affect the basic word structure of VA, as the plural can also be encoded by umlaut and suffix, thus, realization rules for umlaut and suffixes do not exclude each other,

and they are not in complementary distribution. If plural could only be encoded either by umlaut or suffix, the realization rules for umlaut and suffix would be in the same block.

Second, the encoding of morphosyntactic categories is examined (for reasons of economy and clarity we focus on the most important changes): OS and Ö show a very similar number of allomorphs for each case and number. This does not mean that Ö preserved the OS suffixes, though: For example, OS -r is lost (see below), while Ö -o (which is not present in OS) emerged. Other differences between OS and Ö are due to phonological changes affecting the realized paradigm, e.g. OS -ar > Ö -er, and the emergence of nasalized vowels in Ö. A central change from OS to Ö is the increase of the number of inflection classes in which the singular is not marked, i.e. where only the stem appears in the singular cells of the paradigm. This causes a clear split between a mostly non-marked singular (strong; inflection is preserved in the weak singular) and a marked plural (masculine and feminine). This change mainly concerns the strong masculine nouns, as the strong feminine OS nouns already have uninflected forms for nominative, accusative, and dative. The same holds true for strong neuters concerning nominative and accusative. Non-marking in the masculine is caused by the loss of -r (encoding nominative singular), which is not a phonological change: -Vr is not only preserved as a plural marker but it also is the only plural marker in the masculine (nominative) and feminine (nominative and accusative). As -r does not appear in the singular, it has evolved into a distinct plural marker.[8] As will be shown in Section 3.4, there is an ongoing change in the form paradigm towards a nominative/accusative syncretism, thus, the syncretism between nominative and accusative in the realized paradigm is due to changes in the form paradigm. However, which form is chosen to encode this syncretic form (the OS nominative suffix -r or the OS accusative -[ ][9]) is a change in encoding, and thus a realized paradigm change: As a tendency towards non-marking in the singular is observed in OS and Ö, it can be assumed that this tendency also causes the selection of -[ ] instead of -r in Ö. The weak singular inflection changes in the opposite direction. In OS, there is one inflection class in the weak inflection for each gender (masculine, feminine, neuter) (Table 16). In Ö, however, the masculine and the feminine show two inflection classes (the neuter one) (Table 17).

Compared to Ö, VA displays more dramatic changes. In the strong inflection, all marking is lost, including dative marking (see Table 4), while Ö preserves some encoding of the dative singular masculine and neuter (strong inflection). VA only

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8.   Note that -r is found in the verb inflection as well (singular indicative of weak verbs, cf. Levander 1909: 77–78).

9.   -[ ] signifies that there is no phonological output, the word form is not overtly inflected.

maintains -ʃ for genitive masculine and neuter. The loss of inflection in the strong inflection classes is not due to phonological changes, as the weak singular and the plural preserve a rich inflection – it is caused by a realized paradigm tendency towards non-marking in the singular (as in Ö). In the weak inflection, nominative and accusative are syncretized (see Table 4). This is not caused by phonological changes: No phonological explanation can be found for the change from OHG -*un* (accusative) (Table 5) to VA -*o* (accusative masculine) and to VA -*a* (accusative feminine) (Table 4). This syncretism is due to changes in the form paradigm, leading to a consequent syncretism between nominative and accusative in all nominal parts of speech (except personal pronouns), as will be shown in Section 3.4. However, it is a change in the realized paradigm that clarifies which form is to be chosen for the syncretic form. In VA, the form which can be traced back to the OHG nominative form encodes the nominative/accusative cells: -*o* for masculine, and -*a* for feminine (compare Table 4 vs. Table 5 for the weak noun inflection).[10]

Table 4. Noun inflection in the singular in Visperterminen Alemannic (based on Wipf 1910: 119–132)

IC	gender	nom	acc	dat	gen
strong	m/n	-[ ]	-[ ]		-ʃ
	f	-[ ]	-[ ]	-[ ]	-[ ]
weak	m	-o	-o	-u	-u
	f	-a	-a	-u	-u

Table 5. Noun inflection in the strong (a-stem)** and weak singular in Old High German (Braune 2004: 207)

IC	gender	nom	acc	dat	gen
strong	m	-[ ]	-[ ]	-e	-s
	f	-a	-a	-u	-a
weak	m	-o	-un	-in	-in
	f	-a	-un	-un	-un

** To represent the strong inflection in OHG, a-stems are taken for the masculine, ō-stems for the feminine.

Thus, the realization rule for accusative singular masculine is lost, the realization rules for nominative masculine and feminine also encode accusative masculine and feminine (Figure 5).

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10. This can be generalized to all the other nominal parts of speech: The form which can be traced back to the OHG nominative form encodes nominative/accusative in VA.

Old High German

X, [weak], [{nom}∧{f}] → X*a*
X, [weak], [[(acc) ∨{dat}∨{gen}]∧{f}] → X*un*
X, [weak], [{nom}∧{m}] → X*o*
X, [weak], [{acc}∧{m}] → X*un*
X, [weak], [[{dat}∨{gen}]∧{m}] → X*in*

Visperterminen Alemannic

X, [weak], [[{nom}∨{acc}]∧{f}] → X*a*
X, [weak], [[{dat}∨{gen}]∧[{m}∨{f}]] → X*u*
X, [weak], [[{nom}∨{acc}]∧{m}] → X*o*

Figure 5. Realization rules OHG/ VA

Regarding the dative/genitive singular in feminine weak declension, the change from OHG -*ūn* to VA -*u* is a phonological change: Alemannic dialects lose [n] in the coda, and long vowels in unstressed syllables are shortened. Note that this does only affect the phonological shape of the suffix, but not the realized paradigm (cf. Table 4 and Table 5). OHG -*in* (masculine dative and genitive) to VA -*u* for dative singular masculine weak, however, is a change in the realized paradigm, namely an analogical extension from the feminine to the masculine. As a consequence, the realization rule for dative/genitive masculine is lost. Thus, a partial paradigm leveling can be observed in the weak singular masculine/feminine inflection of VA, while additional inflection classes emerge in the weak singular masculine/feminine inflection of Ö. The OHG weak neuter nouns inflect in VA like the strong neuter nouns (Wipf 1910: 130). As only very few neuter nouns are weak in OHG (Braune 2004: 210), it can be expected that these nouns change inflection classes and are inflected in analogy to nouns with which they share a morphosyntactic feature, in this case the neuter gender.

The plural of VA preserves a rich inflection, causing a clear split between the strong singular and the plural. In the nominative and accusative plural, an increase in the number of allomorphs can be observed: In addition to the OHG suffixes -*a*, -*ir*, -*i*, -*un*, -*ūn* and -[ ], VA has umlaut, -*e* (with and without umlaut), and -*m*. Note that contrary to OHG, umlaut can encode plural without an additional suffix (thus, an actual plural marker) (*chopf → chepf* 'head', Wipf 1910: 122). Some words with -*er* in the plural have an umlaut (*chrut → chriter* 'herbs', Wipf 1910: 124), while others do not (*lamm → lammer* 'lamb', Wipf 1910: 124). In the dative and genitive plural, the number of allomorphs is reduced to one for the dative (-*u*) and one for the genitive (-*o*). Although long unstressed vowels are shortened in VA, the changes from OHG -*um*, -*ōm*, -*im* to VA -*u*, and from OHG -*o*, -*ōno* to VA -*o* predominantly are changes in the realized paradigm, leading to a distinct encoding of dative and genitive plural: (a) There is no syncretism between the genitive plural and any other plural form; (b) The dative plural is syncretized with the nominative/accusative plural only in 2 out of 16 inflection classes.

In summary, Ö and VA change towards non-marking in the strong singular inflection (VA more so than Ö), while inflection is largely preserved in the weak

singular as well as in the plural in general. VA shows an increase in allomorphy in the nominative/accusative plural, but a decrease in allomorphy in the dative and genitive plural. Ö seems to be rather stable regarding the number of nominative/accusative plural markers, while only one dative plural marker is preserved (like in VA).

3.4   Form paradigms

To build up the realized paradigms, we proceed in three steps which are illustrated based on the OHG strong and weak inflection of masculine and neuter nouns. Firstly, we need to create a realized paradigm based on the information from the grammatical descriptions (see Section 3.3). Table 6 shows the realized paradigm for the weak and strong inflection of the singular masculine and neuter in OHG. Secondly, as the form paradigm defines the morphosyntactic properties which are realized through realization rules (Stump 2016: 104), it is based on entire word forms (= a set of realization rules) and not on single affixes (= single realization rules). Note also that for the varieties under investigation, only one stem per lexeme needs to be assumed. If the stem changes its shape, it is due to phonology (e.g. the umlaut in OHG is triggered by phonological rules) or encodes morphosyntactic properties (e.g. the umlaut in VA marks plural). The simplest way to deduce a form paradigm from the realized paradigm is to replace the word forms by variables (e.g. A, B, etc.) within the same inflection class (Table 7, based on Table 6) and not across inflection classes. The same affix may appear across inflection classes for the same morphosyntactic property, however, other morphosyntactic properties of the same inflection classes may be encoded in different ways. For example, in the OHG weak inflection the dative and genitive are encoded by *-in* in the masculine and neuter singular (Table 6), while the neuter nominative and accusative are marked by *-a*, the masculine nominative by *-o* and masculine accusative by *-un*.

Table 6. Realized paradigm of the strong and weak singular masculine and neuter in OHG (Braune 2004: 185–194, 200–203, 204–210)

IC	gender	nom	acc	dat	gen
a-stem	m/n	-[ ]			
iz/az-stem	n			-e	-es
i-stem	m				
ja-stem	m/n	-i			
i-stem	n			-e	-es
u-stem	m	-u		-e	-es
n-stem	n	-a		-in	
	m	-o	-un	-in	

Table 7. Realized paradigm with word forms replaced by variable

IC	gender	nom	acc	dat	gen
a-stem	m/n				
iz/az-stem	n		A	B	C
i-stem	m				
ja-stem	m/n		A	B	C
i-stem	n				
u-stem	m		A	B	C
n-stem	n		A		B
	m	A	B		C

After having replaced the word forms by variables (Table 7), the form paradigm can easily be deduced (Table 8). The OHG strong inflection is reduced to one inflection class: The stems are inflected for nominative/accusative, dative, and genitive. How these three form paradigm categories are encoded is defined in the realized paradigm.

Table 8. Form paradigm of the strong and weak singular masculine and neuter in OHG

		nom	acc	dat	gen
strong	m/n		A	B	C
weak	n		A		B
	m	A	B		C

Adopting Stump's (2016) formalization, the form paradigm has the structure displayed in Table 9. It contains morphomic features like NA representing the syncretism between nominative and accusative as well as information about inflection classes (strong vs. weak). They adequately capture the regularities in the inflection. In the content paradigm, they appear in another form (nominative and accusative separated) or disappear (inflection class) (cf. Table 3 in Section 3.2), as the syntax cannot 'read' them (NA, strong). In the following, the form paradigm is represented as in Table 8 (it captures the same pattern as Table 9), because we assume that this type of representation is easier to process.

Table 9. Form paradigm of the strong and weak singular masculine and neuter in OHG adopting Stump's formalization

⟨X,{sg NA strong mn}⟩		⟨X,{sg D strong mn}⟩	⟨X,{sg G strong mn}⟩
⟨X,{sg NA weak n}⟩		⟨X,{sg DG weak n}⟩	
⟨X,{sg N weak m}⟩	⟨X,{sg A weak m}⟩	⟨X,{sg DG weak m}⟩	

As a result of this procedure applied to the four varieties, we obtain 13 different form paradigm inflection classes for OS (21 in the realized paradigm), and 9 for OHG, VA, and Ö (Table 10). However, as singular and plural show very different paradigms, this system can be reduced to an even more condensed form if the focus is just on either singular or plural (Table 11). This is why singular and plural will be analyzed separately in the following. First, the form paradigm changes from OS to Ö are analyzed, subsequently the changes from OHG to VA.

Table 10. Number of inflection classes in the form and realized paradigm

	Realized paradigm	Form paradigm		
	Number combined: singular and plural	Number combined: singular and plural	Number separated:	
			singular	plural
Old Swedish	21	13	6	3
Övdalian	18	9	3	2
Old High German	19	9	6	1
Visperterminen Alemannic	17	9	3	3

Table 11. Form paradigm of Old Swedish

IC	gender	nom	acc	dat	gen
		SINGULAR			
a, ia, u monosyll	m	A	B	C	D
ja, i r	m m/f	A	B		C
a, ia, ja	n	A		B	C
ō, iō, jō, i monosyll	f	A			B
nd, an ōn, ūn	m f	A	B		
an	n	A			
		PLURAL			
a, ia, ja an	m	A	B	C	B
u, i	m	A	B	C	D
consonantal –	m f/n	A		B	C

Table 11 displays the form paradigm of OS, Table 12 the form paradigm for Ö. While OS shows a large form paradigm with complex relations between stems, gender and form paradigm inflection classes, Ö has reduced and systematized the form

Table 12. Form paradigm of Övdalian

IC		gender	nom	acc	dat
			SINGULAR		
strong	decl Ia + II	m	A		B
	–	n			B
weak	–	m	A	B	
	–	f			
strong	Id + V	m			
	–	f	A		
weak	–	n			
			PLURAL		
–	–	m	A	B	C
–	–	f/n	A		B

paradigm. The question is what these changes are motivated by. The only change in
the weak inflection (all genders) as well as in the strong neuter is caused by the loss
of the genitive, which does not affect the pattern of the form paradigm: nomina-
tive = accusative ≠ dative (strong neuter), nominative ≠ accusative = dative (weak)
in OS and Ö. The loss of the genitive, however, causes the collapse of the strong
and monosyllabic feminine with the weak neuter. Thus, a change in the content
paradigm (caused by a change in the argument structure, i.e. verbs only govern
accusative and dative in Ö, while they govern accusative, dative and genitive in OS)
triggers a change in the form paradigm. In the strong and monosyllabic masculine,
nominative and accusative are not distinguished anymore. Thus, they collapse either
with the weak neuter and strong feminine or with the strong neuter, depending
on whether the dative masculine differs from the nominative/accusative. As was
shown in Section 3.3, the nominative masculine is encoded by -r, the accusative
by -[ ] in OS. The question is whether the loss of -r in the realized paradigm causes
the syncretism (in the form paradigm), or whether a change in the form paradigm
(syncretizing nominative and accusative) causes the loss of -r in the realized para-
digm. Comparing the noun paradigms of OS, Classical Övdalian (Levander 1909)
and Traditional Övdalian[11] (Svenonius 2015), a steady increase of syncretism be-
tween nominative and accusative can be observed: (a) OS has syncretisms between
nominative and accusative in the singular in all neuter nouns, in most strong and
the monosyllabic feminine nouns, in the masculine u-stem, and throughout the

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11. We support the following nomenclature: The Övdalian variety documented by Levander
(1909), spoken by people born in the 19th century, is called *Classical Övdalian* (Garbacz
2010: 34), the Övdalian variety collected in the NORMS project in 2007 and spoken by people
born between 1920 and 1950 *Traditional Övdalian* (Svenonius 2015: 178).

plural (except for strong and weak masculine nouns); (b) Classical Övdalian shows nominative/accusative syncretism in all inflection classes, except in the weak singular masculine and feminine as well as in the strong and weak plural masculine; (c) Traditional Övdalian has lost any distinction between the two cases. Considering these facts, the change seems rather to be a systematic one (form paradigm), finally affecting all inflection classes, than a change in encoding (realized paradigm). The selection of -[ ] rather than -*r* for the category nominative/accusative in the realized paradigm can be explained by the tendency in the realized paradigm not to mark singular (cf. Section 3.3). Finally, also in the former r-stems, nominative and accusative are no longer distinguished due to the same change in the form paradigm, i.e. only the stem appears in the cells of the realized paradigm.

In the plural, the strong and weak masculine have merged because the genitive is lost. The masculine consonantal stems are encoded by -*r* for nominative and accusative in OS (Noreen 1904: 329–332), by -V*r* for nominative and -[ ] for accusative in Ö (Levander 1909: 24). As described in Section 3.3, -V*r* marks the plural for nominative masculine as well as for nominative and accusative feminine in Ö. Therefore, the former r-stems did not merge with the other masculine nouns because they lost -*r* in the accusative, but a merger of inflection classes can be observed: The few nouns belonging to the r-stems follow the pattern of all the other nouns with which they share a morphosyntactic property, namely masculine gender.

The form paradigm of OHG is displayed in Table 13, the form paradigm for VA in Table 14. As for Ö, a reduction of the number of inflection classes as well as a systematization can be observed in VA. Section 3.3 concluded that there is a clear tendency towards a non-marked singular in VA (except weak masculine and feminine), thus a change in the realized paradigm: The strong feminine nouns are not inflected, the strong masculine and neuter nouns only have an inflected form for genitive. This realized paradigm change caused the collapse of the different strong feminine inflection classes on the one hand, and the strong masculine and neuter inflection classes on the other hand in the form paradigm. The weak inflection classes preserve inflected forms in the singular but, contrary to OHG, nominative and accusative are syncretized (cf. Table 4 and Table 5 in Section 3.3). The syncretism is encoded by a suffix which can be traced back to the OHG nominative suffix. This is neither a phonological nor a syntactic change (as nominative and accusative are distinguished in the syntax). Parallel to the changes from OS to Ö, we argue here that the nominative-accusative syncretism in VA is caused by a change in the form paradigm. In VA, nominative and accusative are not only syncretized in the noun inflection but in all nominal parts of speech. Only some accusative forms in the personal pronoun differ from the nominative forms (this is

why VA has a four-case system). Assuming a change in the form paradigm, i.e. that stems are inflected for the morphomic category N/A, is a very elegant explanation: Without any further assumption it predicts all the changes in the different realized paradigms of every nominal part of speech (excluding personal pronouns), i.e. the syncretism between nominative and accusative. Which form is chosen to encode the morphomic category N/A is defined in the realized paradigm. The form which can be traced back to the OHG nominative form, encodes the syncretism in all nominal parts of speech. This is not very surprising as the nominative form is the least specific and the most frequent one.

Table 13. Form paradigm of Old High German

IC	gender	nom	acc	dat	gen
		SINGULAR			
strong	m / n	A		B	C
ō, jō	f	A		B	A
i / weak	f / n	A		B	
weak	m	A	B	C	
weak	f	A	B		
īn / cons. stem	f / m/f	A			
		PLURAL			
–	–	A		B	C

Table 14. Form paradigm of Visperterminen Alemannic

IC	gender	nom	acc	dat	gen
		SINGULAR			
strong	f	A			
strong / weak	m/n / n	A			B
weak	m/f	A		B	
		PLURAL			
strong / weak	m/f/n / m/f	A		B	C
strong / weak	f / m/n	A			B
strong	–	A			

In the plural, most inflection classes in the realized paradigm are inflected according to the form paradigm pattern nominative = accusative ≠ dative ≠ genitive, which corresponds to the OHG pattern. The increase of the number of patterns in the plural is due to two facts. Firstly, loan words do not inflect in VA. Secondly, it was shown that the dative plural marker is -*u*. As a consequence, if the nominative and the accusative are marked by -*u* too, the form paradigm has the pattern nominative = accusative = dative ≠ genitive. This affects the weak masculines and neuters as well as one strong feminine inflection class. In OHG, -*un* is suffixed to weak masculines and neuters encoding nominative and accusative plural. OHG -*un* to VA -*u* is due to the phonological change deleting [n] in the coda. Thus, the change in the form paradigm is caused by a phonological change, mediated through the realized paradigm. The feminine is a tricky case. In OHG, the strong feminines are inflected for nominative and accusative plural by suffixing -*a* (ō- and jō-stem) or -*i* (i-stem), in VA by -*e*, -*a*, and -*u*. At the moment, the question why -*e* and -*u* have emerged must remain unanswered.

4. Summary

In summary, there are several advantages in applying the concepts of *content*, *form*, and *realized paradigm* to the analysis of language change. In doing so, we can not only locate the sources of different changes with much higher precision but also study the effects that changes have on different parts within inflectional morphology. Thus, the result is a finer granularity and appropriateness of description and modeling of language change. In the following, the most important changes are summarized, in order to give an overview not only over these changes but also over the functionality of the model.

Syntax →Content paradigm →Form paradigm
The genitive is lost in Ö (preserved in VA), presumably due to changes in the argument structure. The new category POSSESSIVE (in the content and form paradigm) is not simply encoded by the former genitive allomorphs. Only the suffix -*s* – formerly encoding genitive singular masculine and neuter of the strong inflection – is reanalyzed to encode possessive, independently of number and gender. Additionally, the loss of the genitive also caused the collapse of some inflection classes in the form paradigm.

Form paradigm →Realized paradigm
Nominative and accusative are syncretized in VA and in Ö (with the exception of weak singular and masculine plural in Ö). This change explains the loss of OS -*r* (nominative singular masculine strong inflection, the only strong inflection class

in OS which distinguishes nominative and accusative) in Classical Övdalian as well as the changes in Traditional Övdalian (nominative and accusative are never distinguished in the definite and indefinite nouns, including weak inflection and plural). In VA, the change is more advanced than in Classical Övdalian: It additionally affects the weak noun inflection and all nominal parts of speech (except personal pronouns). Note that the nominative and accusative masculine singular of the strong inflection, as well as the nominative and accusative plural, are already syncretized in OHG (distinguished in OS with *-r* as the nominative masculine marker). Thus, we can deduce that at the level of the NP nominative and accusative are never distinguished in VA and in Traditional Övdalian. The differences between VA and Classical Övdalian can be explained by a differing rate of change. While the change proceeds in the same direction in VA and Classical Övdalian, VA is in a more advanced state of the process than Classical Övdalian. Finally, we assume that the increase of nominative-accusative syncretisms in VA and Ö is the result of analogy in the form paradigm: The majority of the inflection classes in OHG and OS already show a nominative-accusative syncretism, thus, an (almost) total collapse of the two cases can be expected.

Realized paradigm →Form paradigm
It was observed that suffixes are lost in the strong singular inflection in Ö (with only some dative masculine singular markers preserved) as well as in VA (showing complete loss, including the dative). This is not caused by phonological changes, but by changes in the realized paradigm (namely the tendency not to mark singular). Thus, this loss of suffixes happens in the realized paradigm and causes the merger of several inflection classes in the form paradigm. A further consequence of the loss of suffixes in the singular strong inflection is the strengthening of the dichotomy between singular and plural: In general, only the stem occurs in the singular cells, while the plural forms show at least one plural affix. However, the tendency to morphologically encode plural, but not singular (which may be explained by iconicity), can also be analyzed as the cause for the loss of suffixes in the singular. Irrespective of what is the cause and what is the effect, the loss of suffixes is a change which occurs in the realized paradigm (meaning that it was not caused by phonological changes), as it is a change in exponence and affects the form paradigm.

For reasons of comparison as well as to show the accuracy of the model, two purely realized paradigm changes are added here. Firstly, it was shown that there is a tendency to syncretize nominative and accusative. It was argued that this is a change in the form paradigm. However, which form is selected to encode this syncretism depends on the structure of the realized paradigm. Nominative and accusative singular are distinguished in the strong masculine (*-r* for nominative, -[ ] for accusative) and in the weak masculine and feminine inflection in OS. In

Ö, nominative and accusative singular are syncretized in the strong masculine inflection. The OS accusative form encodes the syncretism in Ö as it is the form without any affix (this can be attributed to the tendency not to mark singular). The nominative/accusative distinction (weak singular masculine and feminine) is preserved in Ö. In OHG, the nominative and accusative singular differ from each other only in the weak masculine and feminine inflection, but they are syncretized in VA (change in the form paradigm). The form which can be traced back to the nominative form in OHG encodes the syncretism in VA. This is not surprising, as the nominative singular may be seen as the least specific and most frequent form. Note also that the same change takes place in all nominal parts of speech in VA. Secondly, a partial paradigm leveling can be observed in the VA weak singular inflection. It was shown that the form for dative/genitive feminine also encodes the dative/genitive masculine. The weak singular inflection in Ö changes in the opposite direction as additional inflection classes emerge in the weak singular masculine and feminine. These changes are not caused by changes in phonology or in the form paradigm. These are changes within the system of exponence, where for example an exponence is successful because of a general tendency of losing suffixes (OS accusative form in Ö) or because it is the least specific and most frequent form (OHG nominative form in VA).

Phonology →Realized paradigm
New allomorphs emerge in Ö. This is indirectly caused by phonological changes: Phonology provides a larger inventory (e.g. nasalized vowels) that can be utilized by the realized paradigm for encoding. It depends, however, on the morphological structure whether or not the new phonological inventory is used. In VA, some forms in the nominative, accusative and dative plural of the masculine and neuter weak inflection do not differ from each other (*-u*). This syncretism is due to changes in the phonology and in the realized paradigm: The OHG nominative/accusative marker *-un* is *-u* in VA ([n] is lost in the coda) and the dative plural is encoded by *-u* in all inflection classes (analogical leveling of the dative marker in the realized paradigm).

In summary, analyzing language change with Stump's (2016) model has the following advantages:

– It allows to compare and analyze language change between different varieties in a consistent and uniform way and to uncover more general tendencies across languages. This is only possible with a tool that is very precise for the single languages, but can at the same time potentially be applied to all languages.
– It allows to precisely localize, differentiate, and analyze different types of inflectional change. For example, VA and Ö tend to syncretize nominative and accusative singular (except weak masculine and feminine in Ö). It was argued

that this is a form paradigm change. However, the two varieties differ regarding the encoding of the syncretism, i.e. at the level of the realized paradigm: VA uses the form (for all nominal parts of speech, except personal pronouns) which is related to the OHG nominative form, while Ö uses the form which can be traced back to the OS accusative form. The differences in encoding can be explained by changes which affect the entire system of encoding (and not only the encoding of nominative and accusative). The accusative form (-[ ]) is better suited than the nominative form (-*r*) in Ö because there is a general tendency of not marking the singular and because -*r* is reanalyzed as a plural marker (masculine and feminine). In VA, the nominative form is chosen to encode the syncretism, because it is the least specific and most frequent form. Thus, we can identify and model tendencies across languages (in this case the syncretism between nominative and accusative in the form paradigm), while the model simultaneously allows to analyze and explain differing changes (within the realized paradigm) – which, however, are related to the shared change in the form paradigm.

– It allows to disentangle cause and effect in language change. For example, the genitive is not lost in Ö because of changes in the encoding of the genitive (e.g. phonology or analogy in the realized paradigm). The genitive is lost as a syntactic function which is due to changes in the argument structure of verbs (verbs only govern accusative and dative in Ö). This change in the argument structure directly affects only the content paradigm, as syntax has only access to the content paradigm. The genitive is lost as a syntactic function (syntax and content paradigm); however, the forms that encoded the genitive in OS may still exist (realized paradigm). These forms in the realized paradigm which encoded the genitive, can be reanalyzed to encode other syntactic or morphosyntactic properties: The suffix -*s*, which encoded genitive singular masculine and neuter in OS, encodes possessive in Ö. This suffix has nothing specific 'possessive' per se, but from a form point of view (the structure of the realized paradigm) it is the best suited candidate to encode possessive. In OS, -*s* does not encode anything else than genitive singular. In Ö, -*s* exclusively marks possessive. The two other genitive allomorphs in OS are -V*r* (singular) and -*a* (plural). It was shown that in Ö -V*r* is only used in the plural (masculine nominative, feminine nominative/accusative), -*a* encodes masculine accusative plural and different cases in the weak singular inflection. Thus, -*s* is the most distinct form in the realized paradigm, which makes it the best candidate to encode possessive. If we would assume a direct connection between syntactic functions and inflectional encoding, we could not explain why a syntactic function is lost, while some affixes survive, and why a specific suffix is reanalyzed.

5.   Outlook

In this last chapter, we would like to point to an issue regarding the status of case marking (or the marking of morphosyntactic properties in general) at the level of the whole NP instead of the isolated noun. For this, we also investigated case marking at the level of the NP. Included are the following types of NPs: indefinite article (+ adjective) + noun, definite article (+ adjective) + noun. Table 15 displays which cases are syncretized at the level of the NP in VA: In the masculine and neuter singular as well as in the plural (all genders), nominative and accusative are not distinguished. In the feminine singular, dative and genitive collapse as well. This signifies that if nouns in the nominative and accusative do not differ from one another, the two cases are not disambiguated at the level of the noun phrase by case marking on the article or adjective. If the dative or the genitive are not distinguished from the nominative/accusative in the nouns inflection, they always are disambiguated in the noun phrase by inflection of the article and the adjective. The same applies to the syncretism between dative and genitive, except in the feminine singular.

Table 15. Syncretisms in the NP in VA

		nom	**acc**	**dat**	**gen**
singular	f		A		B
plural	m/n m/n/f		A	B	C

This is characteristic for all Alemannic dialects. Several Alemannic dialects have even reinforced the dative marking by adding a dative marker in the first position of the NP (Seiler 2003).

We could now assume that the NP does not play any role. Morphology provides single word forms to syntax, while syntax has to make the best out of this. Accordingly, all changes in case marking exclusively act on single lexical categories/word forms. To attain the situation nominative = accusative ≠ dative in the NP (we do not include the genitive, as only some very isolated Highest Alemannic dialects have preserved it), we would then assume that the accusative marking is lost, and dative marking is preserved in the inflectional morphology. However, this does not correspond to the pattern we find in the data. VA lost dative marking on nouns in most of the singular as well as in the plural of the weak adjective inflection, but preserved dative marking in all the other inflection classes/numbers/lexical categories. Alemannic dialects other than Highest Alemannic ones lost all case marking on nouns as well as nominative and accusative marking in all nominal parts of speech, while dative marking is preserved in the articles and strong adjectives (and to a

lesser extent in the weak adjectives). Thus, we cannot claim that accusative marking is lost, and dative marking is preserved within a lexical category or even in all of them: An interpretation as a general change affecting all or some single nominal categories would not appropriately describe the data.

In Alemannic dialects accusative is never marked, some dative word forms are marked, and others are not. But at the level of the NP the dative is always distinguished from nominative/accusative by inflection. In the NP, dative is not only preserved (for example preserved in the article, lost in the substantives and adjectives) but it may also be redundantly marked on different nominal parts of speech and/or by a case marking element preceding the NP (or better, in the first position of the NP).[12]

Thus, NPs are systematically marked or not marked for case (and if they are marked, this might even be redundantly and/or reinforced by an additional case marking element). These facts suggest that the NP plays a certain role too. This raises the question of what role the NP does play, and where or how should it be modeled: Is the NP part of morphology, of syntax, or does it constitute an additional level between morphology and syntax? If so, what are the relations between syntax, noun phrases, and inflection? To answer these questions, further analyses about the role of the NP are needed.

References

Åkerberg, Bengt. 2012. *Älvdalsk grammatik*. Under medverkan av Gunnar Nyström. Mora: Ulum Dalska.

Allen, Cynthia L. 2006. Case syncretism and word order change. In *The Handbook of the History of English*, Ans van Kemenade & Bettelou Los (eds), 201–223. Oxford: Wiley-Blackwell. https://doi.org/10.1002/9780470757048.ch9

Anderson, Stephen R. 1992. *A-morphous Morphology*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511586262

Baechler, Raffaela & Pröll, Simon. 2018. Loss and preservation of case in Germanic non-standard varieties. *Glossa: a journal of general linguistics* 3(1), 113: 1–35. https://doi.org/10.5334/gjgl.680

Braune, Wilhelm. 2004. *Althochdeutsche Grammatik: Laut- und Formenlehre*, Vol. 1, 15th edn. Tübingen: Niemeyer. https://doi.org/10.1515/9783110930887

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12. It is still not clear why the dative is preserved in some Germanic varieties. Its preservation may be connected with a relatively free word order of accusative and dative objects in some Germanic varieties (see Baechler & Pröll 2018, including a longer discussion about nominative-accusative syncretism and dative preservation) or with the preservation of the dative as a lexical case resp. with the change to a structural case (Eyþórsson, Johannessen, Laake & Åfarli 2012).

Braunmüller, Kurt. 1999. *Die skandinavischen Sprachen im Überblick*, 2nd edn. Tübingen: Francke.

Dahl, Östen & Koptjevskaja-Tamm, Maria. 2006. The resilient dative and other remarkable cases in Scandinavian vernaculars. *Sprachtypologie und Universalienforschung* 59: 56–75.

Elspaß, Stephan. 2012. Wohin steuern Korpora die Historische Sprachwissenschaft? Überlegungen am Beispiel des 'Neuhochdeutschen'. In *Historische Sprachwissenschaft: Erkenntnisinteressen, Grundlagenprobleme, Desiderate*, Péter Maitz (ed.), 201–225. Berlin: De Gruyter.

Enger, Hans-Olav. 2013. Inflectional change, 'sound laws' and the autonomy of morphology. The case of Scandinavian case and gender reduction. *Diachronica* 30: 1–26. https://doi.org/10.1075/dia.30.1.01eng

Eyþórsson, Þórhallur, Johannessen, Janne Bondi, Laake, Signe & Åfarli, Tor A. 2012. Dative case in Norwegian, Icelandic and Faroese: Preservation and nonpreservation. *Nordic Journal of Linguistics* 35: 219–249. https://doi.org/10.1017/S0332586513000036

Garbacz, Piotr. 2010. Word Order in Övdalian: A Study in Variation and Change. PhD dissertation, Lund University.

Levander, Lars. 1909. *Älvdalsmålet i Dalarna: Ordböjning ock syntax*. Stockholm: Norstedt.

Noreen, Adolf. 1904. *Altschwedische Grammatik mit Einschluss des Altgutnischen*. Halle: Niemeyer.

Pröll, Simon & Kleiner, Stefan. 2016. Silbengrenzen im Gebrauchsstandard: Empirie, Theorie und Typologie. *Deutsche Sprache* 44(3): 193–213.

Seiler, Guido. 2003. *Präpositionale Dativmarkierung im Oberdeutschen*. Suttgart: Steiner.

Spencer, Andrew. 2004. Morphology: An overview of central concepts. In *Projecting Morphology*, Louisa Sadler & Andrew Spencer (eds), 67–109. Stanford CA: CSLI.

Stump, Gregory. 2001. *Inflectional Morphology: A Theory of Paradigm Structure*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511486333

Stump, Gregory. 2016. *Inflectional Paradigms. Content and Form at the Syntax-morphology Interface*. Cambridge: CUP. https://doi.org/10.1017/CBO9781316105290

Svenonius, Peter. 2015. The morphological expression of case in Övdalian. In *Studies in Övdalian Morphology and Syntax: New Research on a Lesser-known Scandinavian Language* [Linguistics Today 221], Kristine Bentzen, Henrik Rosenkvist, & Janne Bondi Johannessen (eds), 177–230. Amsterdam: John Benjamins.

Trudgill, Peter. 2011. *Sociolinguistic Typology: Social Determinants of Linguistic Complexity*. Oxford: OUP.

Wipf, Elisa. 1910. *Die Mundart von Visperterminen im Wallis*. Frauenfeld: Huber.

Appendix

Table 16. Noun inflection in Old Swedish (Noreen 1904: 280–334)

			Singular				Plural			
			nom	**acc**	**dat**	**gen**	**nom**	**acc**	**dat**	**gen**
strong	a-stem	masc	*fisk-er*	*fisk*	*fisk-e*	*fisk-s*	*fisk-ar*	*fisk-a*	*fisk-om*	*fisk-a*
		neut	*skip*	*skip*	*skip-i*	*skip-s*	*skip*	*skip*	*skip-um*	*skip-a*
	ja-stem	masc	*væv-er*	*væf*	*væf*	*væf-s*	*væfi-ar*	*væfi-a*	*væfi-om*	*væfi-a*
		neut	*skær*	*skær*	*skær-i*	*skær-s*	*skær*	*skær*	*skæri-om*	*skæri-a*
	ia-stem	masc	*øri-r*	*øre*	*øre*	*øri-s*	*ør-ar*	*ør-a*	*ør-om*	*ør-a*
		neut	*minne*	*minne*	*minne*	*minni-s*	*minne*	*minne*	*minn-om*	*minn-a*
	ō-stem	fem	*agn*	*agn*	*agn*	*agn-ar*	*agn-ar*	*agn-ar*	*agn-om*	*agn-a*
	jō-stem	fem	*æg*	*æg*	*æg*	*ægi-ar*	*ægi-ar*	*ægi-ar*	*ægi-om*	*ægi-a*
	iō-stem	fem	*hēþ*	*hēþ-e*	*hēþ-e*	*hēþ-ar*	*hēþ-ar*	*hēþ-ar*	*hēþ-om*	*hēþ-a*
	i-stem	masc	*rætt-er*	*ræt*	*ræt, rætt-e*	*rætt-ar, ræs*	*rætt-ir*	*rætt-e*	*rætt-om*	*rætt-a*
		fem	*færþ*	*færþ*	*færþ*	*færþ-ar*	*færþ-ir*	*færþ-ir*	*færþ-om*	*færþ-a*
	u-stem	masc	*son, sun*	*son, sun*	*syn-i*	*son-ar, sun-ar*	*syn-ir*	*syn-i*	*son-um, sun-um*	*son-a, sun-a*
weak	an-stem	masc	*agh-i*	*agh-a*	*agh-a*	*agh-a*	*agh-ar*	*agh-a*	*agh-um*	*agh-a*
		neut	*øgh-a*	*øgh-a*	*øgh-a*	*øgh-a*	*øgh-un*	*øgh-un*	*øgh-um*	*øgh-na*
	ōn-, ūn-stem	fem	*vik-a*	*vik-u*	*vik-u*	*vik-u*	*vik-ur*	*vik-ur*	*vik-um*	*vik-na, vik-u*
cons. stem	monosyll	masc	*maþ-er, man*	*man*	*mann-e*	*man-s*	*mæn*	*mæn*	*mann-om*	*mann-a*
		masc	*fōt-er*	*fōt*	*fōt-e, fōt-e*	*fōt-ar*	*fø̄t-er*	*fø̄t-er*	*fōt-om*	*fōt-a*
		fem	*bōk*	*bōk*	*bōk*	*bōk-ar*	*bø̄k-er*	*bø̄k-er*	*bōk-om*	*bōk-aa*
	r-stem	masc	*faþ-ir*	*faþ-ur*	*faþ-ur, fæþ-er*	*faþ-ur(s)*	*fæþ-er*	*fæþ-er*	*fæþ-r-om*	*fæþ-r-a*
		fem	*mōþ-ir*	*mōþ-or*	*mōþ-or*	*mōþ-or(s)*	*mø̄þ-er*	*mø̄þ-er*	*mōþ-r-om*	*mōþ-r-a*
	nd-stem	masc	*bōnd-e*	*bōnd-a*	*bōnd-a*	*bōnd-a*	*bø̄nd-er*	*bø̄nd-er*	*bōnd-om*	*bōnd-a*

Table 17. Noun inflection in Övdalian (Levander 1909: 11–44)

				Singular			Plural		
				nom	**acc**	**dat**	**nom**	**acc**	**dat**
masc	strong	decl. I	paradigm a	*kall*	*kall*	*kall-e*	*kall-er*	*kall-a*	*kall-ųm*
			paradigm d	*fugel*	*fugel*	*fugel*	*fugl-er*	*fugel*	*fugl-ųm*
		decl. II	–	*smĩð*	*smĩð*	*smĩð-i*	*smĩð-er*	*smĩð-i*	*smĩð-ųm*
		decl. V	paradigm a	*siũ*	*siũ*	*siũ*	*siũ-er*	*siũ-a*	*siũ-ųm*
			paradigm b	*skũa*	*skũa*	*skũa*	*skųųan-er*	*skųų-a*	*skųųa-m*
	weak	decl. III	paradigm a	*uks-e*	*uks-a*	*uks-a*	*uks-er*	*uks-a*	*uks-ųm*
		decl. IV	–	*fual-i*	*fual-o*	*fual-o*	*fual-ir*	*fual-o*	*fual-ųm*
fem	strong	decl. I	paradigm a	*bũð*	*bũð*	*bũð*	*bũð-er*	*bũð-er*	*bũð-ųm*
		decl. II	–	*fyal*	*fyal*	*fyal*	*fyal-ær*	*fyal-ær*	*fyal-ųm*
		decl. III	–	*brauðę*	*brauðę*	*brauðę*	*brauð-ær*	*brauð-ær*	*brauð-ųm*
		decl. VI	–	*silld*	*silld*	*silld*	*silld-er*	*silld-er*	*silld-ųm*
	weak	decl. IV	paradigm a	*kull-a*	*kull-o*	*kull-o*	*kull-er*	*kull-er*	*kull-ųm*
		decl. V	-	*flug-o*	*flug-u*	*flug-u*	*flug-ur*	*flug-ur*	*flug-ųm*
neut	strong	decl. I	paradigm a	*akks*	*akks*	*akks-ę*	*akks*	*akks*	*akks-ųm*
		decl. II	–	*nęęt*	*nęęt*	*nęęt-i*	*nęęt*	*nęęt*	*nęęt-ųm*
	weak	decl. IV	–	*õga*	*õga*	*õga*	*õga*	*õga*	*õg-ųm*

Table 18. Noun inflection in Old High German (Braune 2004: 184–217)

			Singular				Plural			
			nom	**acc**	**dat**	**gen**	**nom**	**acc**	**dat**	**gen**
strong	a-stem	masc	*tag*	*tag*	*tag-e*	*tag-es*	*tag-a*	*tag-a*	*tag-um*	*tag-o*
		neut	*wort*	*wort*	*wort-e*	*wort-es*	*wort*	*wort*	*wort-um*	*wort-o*
	iz/az-stem	neut	*lamb*	*lamb*	*lamb-e*	*lamb-es*	*lemb-ir*	*lemb-ir*	*lemb-ir-um*	*lemb-ir-o*
	ja-stem	masc	*hirt-i*	*hirt-i*	*hirt-e*	*hirt-es*	*hirt-a*	*hirt-a*	*hirt-um*	*hirt-o*
		neut	*kunn-i*	*kunn-i*	*kunn-e*	*kunn-es*	*kunn-i*	*kunn-i*	*kunn-im*	*kunn-o*
	ō-stem	fem	*geb-a*	*geb-a*	*geb-u*	*geb-a*	*geb-a*	*geb-a*	*geb-ōm*	*geb-ōno*
	jō-stem	fem	*sunt-a*	*sunt-a*	*sunt-u*	*sunt-a*	*sunt-a*	*sunt-a*	*sunt-ōm*	*sunt-ōno*
	i-stem	masc	*gast*	*gast*	*gast-e*	*gast-es*	*gest-i*	*gest-i*	*gest-im*	*gest-o*
		neut	*win-i*	*win-i*	*win-e*	*win-es*	*win-i*	*win-i*	*win-im*	*win-o*
		fem	*anst*	*anst*	*enst-i*	*enst-i*	*enst-i*	*enst-i*	*enst-im*	*enst-o*
	u-stem	masc	*sit-u*	*sit-u*	*sit-e*	*sit-es*	*sit-i*	*sit-i*	*sit-im*	*sit-o*
weak	n-stem	masc	*han-o*	*han-un*	*han-in*	*han-in*	*han-un*	*han-un*	*han-ōm*	*han-ōno*
		neut	*herz-a*	*herz-a*	*herz-in*	*herz-in*	*herz-un*	*herz-un*	*herz-ōm*	*herz-ōno*
		fem	*zung-a*	*zung-un*	*zung-un*	*zung-un*	*zung-ūn*	*zung-ūn*	*zung-ōm*	*zung-ōno*
	īn-stem	fem	*hōhī*	*hōhī*	*hōhī*	*hōhī*	*hōhī*	*hōhī*	*hōhī-m*	*hōhī-no*
cons. stem	monosyll	masc	*man*	*man*	*man,* *mann-e*	*man,* *mann-es*	*man*	*man*	*mann-um*	*mann-o*
		fem	*naht*	*naht*	*naht*	*naht*	*naht*	*naht*	*naht-um*	*naht-o*
	r-stem	masc	*fater*	*fater*	*fater-[ ]/-e*	*fater-[ ]/-es*	*fater-a*	*fater-a*	*fater-um*	*fater-o*
		fem	*muoter*	*muoter*	*muoter*	*muoter*	*muoter*	*muoter*	*muoter-um*	*muoter-o*

Table 19. Noun inflection in Visperterminen Alemannic (Wipf 1910: 119–132)

		Singular				Plural			
		nom	**acc**	**dat**	**gen**	**nom**	**acc**	**dat**	**gen**
strong	masc + neut	*tag*	*tag*	*tag*	*tag-sch*	*tag-a*	*tag-a*	*tag-u*	*tag-o*
	masc	*chopf*	*chopf*	*chopf*	*chopf-sch*	*chepf*	*chepf*	*chepf-u*	*chepf-o*
	masc	*ar-o*	*ar-o*	*ar-o*	*ar-u*	*ar-m-a*	*ar-m-a*	*ar-m-u*	*ar-m-o*
	masc	*santim*	*santim*	*santim*	*santim-sch*	*santim*	*santim*	*santim*	*santim*
	neut	*jar*	*jar*	*jar*	*jar-sch*	*jar*	*jar*	*jar-u*	*jar-o*
	neut	*chrut*	*chrut*	*chrut*	*chrut-sch*	*chrit-er*	*chrit-er*	*chrit-er-u*	*chrit-er-o*
	neut	*lamm*	*lamm*	*lamm*	*lamm-sch*	*lamm-er*	*lamm-er*	*lamm-er-u*	*lamm-er-o*
	neut	*ber*	*ber*	*ber*	*ber-sch*	*ber-i*	*ber-i*	*ber-u*	*ber-o*
	fem	*farb*	*farb*	*farb*	*farb*	*farb-e*	*farb-e*	*farb-u*	*farb-o*
	fem	*bon*	*bon*	*bon*	*bon*	*bon-a*	*bon-a*	*bon-u*	*bon-o*
	fem	*sach*	*sach*	*sach*	*sach*	*sach-u*	*sach-u*	*sach-u*	*sach-o*
	fem	*mus*	*mus*	*mus*	*mus*	*mis*	*mis*	*mis-u*	*mis-o*
weak	masc	*han-o*	*han-o*	*han-u*	*han-u*	*han-e*	*han-e*	*han-u*	*han-o*
	masc	*bog-o*	*bog-o*	*bog-u*	*bog-u*	*beg-e*	*beg-e*	*beg-u*	*beg-o*
	masc	*senn-o*	*senn-o*	*senn-u*	*senn-u*	*senn-u*	*senn-u*	*senn-u*	*senn-o*
	neut	*öig*	*öig*	*öig*	*öig-sch*	*öig-u*	*öig-u*	*öig-u*	*öig-o*
	fem	*tsung-a*	*tsung-a*	*tsung-u*	*tsung-u*	*tsung-e*	*tsung-e*	*tsung-u*	*tsung-o*

Variation and change of plural verbs in Salzburg's base dialects

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This chapter focuses on variation and change in the inflectional morphology of plural verbs in Salzburg's dialects over the past hundred years. We conducted a *real-time* trend survey (combined with an *apparent-time* study) as well as a *real-time* panel survey. Our results indicate an ongoing change: Whereas the three-form plural (1PL vs. 2PL vs. 3PL) is becoming less important, the use of the two-form plural (1PL = 3PL vs. 2PL) that is structurally similar to regional Bavarian vernaculars is strongly on the increase. Furthermore, the *real-time* panel survey shows a considerable range of inter- and intra-individual variation. Drawing on Complex Dynamic Systems Theory, we will argue that dialectologists systematically have to take intra-individual variation into account over different periods of time.

1. Introduction

To understand the nature of language one can certainly not ignore its variability and changeability, in particular "since it is possible that language might not 'just change', but change in specific, interesting ways" (Ritt 2004: 16). It is not only language (varieties, dialects, etc.) in general that varies and changes; it is also the idiolect that is dynamic (Lowie 2017; Harrington et al. 2000). Any theory of language which cannot explain the ways languages and idiolects change is necessarily inadequate or incomplete: It has to conceptualize both languages and idiolects as dynamic and complex adaptive systems (Larsen-Freeman 2017; Verspoor 2017; Bülow 2017; Ellis 2011; Schmidt & Herrgen 2011; Beckner et al. 2009; Ritt 2004), i.e. to recognize that language change and language development are non-linear processes which are hard to predict (Bülow 2017). Accordingly, in order to demonstrate the validity of models in linguistics in a way that commands general acceptance, we have to analyze a pertinent part of reality and then reduce complexity. Furthermore, our main goal in the dynamic systems perspective is not to make predictions, it

is to find suitable post hoc explanations.[1] Dialects are an excellent subject for an investigation of dynamics in language use. They are naturally spoken varieties and therefore not subject to standardization processes. Moreover, they have in many cases been empirically documented over at least the past hundred years. Therefore, dialects can provide valuable insights into language variability and the principles of language change.

 This contribution addresses two aspects of the fields of dialectology and variationist linguistics which have so far received too little attention: dialect morphology and intra-individual variation (IAV[2]) over time. In particular, the chapter focuses on variation and change in the base-dialectal inflectional morphology of plural verbs (present indicative). Our general research aim is to investigate inter- and intra-individual variation and change in the use of plural verb paradigms of Salzburg's dialects over the past hundred years. The province of Salzburg is an interesting test case as it not only encompasses large parts of the South Central Bavarian transition zone but also includes West Central Bavarian and South Bavarian dialects (see Figure 1).

Figure 1. Bavarian dialect regions of Austria according to Wiesinger (1983); map compiled with www.regionalsprache.de

According to Rabanus (2008, 2005, 2004) morphological change occurs "mainly in transition zones between different dialect areas" (Rabanus 2004: 349). Just as in

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1.   There are, however, linguistic theories that aim to make predictions (cf. Chomsky 1965).

2.   We take this abbreviation from the developmental psychologist Molenaar (2004) who differentiates between **i**ntra-individual **v**ariation (IAV) and **i**nter-individual **v**ariation (IEV).

the case of sound change, spatiality contributes to the causation of morphological change as well (Rabanus 2010). While sound change has always been of primary interest to dialectologists, and while syntax change has attracted a considerable amount of attention in the last two decades all over Europe (see e.g. *Syntax of Hessian Dialects* [SyHD]; *Scandinavian Dialect Syntax* [ScanDiaSyn]; *Syntactische Atlas van de Nederlandse Dialecten* [SAND]), large-scale projects on dialect morphology are still underrepresented in the discipline.[3] Rabanus (2010: 816–818) explicitly lists the data situation among the problematic aspects in the study of areal variation in morphology:[4] "[A] map that depicts the areal distribution of the variants of a morphological feature will still contain large amounts of white space." (Rabanus 2010: 814) We take this lack of research as a spur to explore the "white spaces" for plural verbs of Salzburg's dialects. We will compare data from the 1920/30s with data from the 1970/80s and recent data from the 2000/10s. Beside the comparison of inter-individual variation over time, we put a special focus on intra-individual variation (IAV) in this chapter. One aim of this study is to demonstrate that the view that substantially prevails, even according to the revised homogeneity assumption of sociolinguistics and dialectology, that "groups of speakers who are sociologically similar tend to be linguistically similar" (Boyd & Fraurud 2010: 686–687), does not accord with the data which we collected. Regarding verb plurals, we found a considerable degree of variation in our data in both the same recordings of the informants and in various recordings of the same informants over time.

The gist of our paper is as follows: On the one hand, we want to capture the general tendencies of language variation and change over the past hundred years (through a *real-time* trend survey and an *apparent-time* study). On the other hand, we want to illustrate the intra-individual variability of the informants (through a *real-time* panel survey).

The chapter is structured as follows: In Section 2, we firstly point out what we mean by intra-individual variation and why we think that variationist linguists should pay more attention to this concept. Secondly, in Section 3, we will give a brief overview of verbal plural formation in general and in Salzburg's base dialects

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3. Two examples of projects focusing on the spatial distribution of morphology are *The Morfologische Atlas van de Nederlandse Dialecten* 'Morphological Atlas of the Dutch Dialects' (MAND) and *The World Atlas of Language Structures* (WALS). The latter atlas, however, does not include dialects.

4. Of course there have been systematic studies with a particular focus on morphological questions (see for example Anderwald 2009; Rabanus 2008; Koch 2007; Wiesinger 1989); these studies, however, mostly zoom in on a few selected features in a structuralist approach, only marginally taking extra-linguistic factors into account.

in particular. Empirical evidence comes from Wenker's questionnaires[5] which were conducted in the 1920/30s in Austria (cf. Fleischer 2017: 96–107; Schallert 2013: 212–214; Wiesinger 1989; Kim 2019). In Section 3, we also explain our research questions in detail. Our methodological approach will be outlined and discussed in Section 4. In Section 5, we firstly analyze and compare the data from the 1970/80s with the data from the 2000/10s (Section 5.1), and then we present a longitudinal study over 13 years (Section 5.2). Based on the results of our data analyses, we will discuss some implications which can be derived from both inter- and intra-individual variation over time in Section 6. We conclude the chapter with a short summary of the most important findings (Section 7).

2.   Theoretical preliminaries

Dialectology has been, and (apart from a few exceptions) still is, influenced by the conception of languages and varieties as bounded in space and tied to local, homogeneous speech communities. The idea that a community in region X speaks variety Y "is a powerful conception in popular as well as professional discourse about language" (Boyd & Fraurud 2010: 686). This overlooks the fact that neither a language (dialect, variety, etc.) nor an idiolect is a strictly homogeneous system. Boyd and Fraurud (2010: 687), for example, point out that "many sociolinguists continue to work as if individual variation or intragroup variation is of secondary importance (cf. Rampton 1997: 330; Wolfram & Thomas 2002: 160–165; Wolfram 2007)". This observation also applies for dialectologists (at least for the traditional ones).

It is commonly assumed in traditional as well as in recent dialect studies that dialect speakers are fairly consistent in their use of phonological or grammatical forms in the same style of speech (i.e. irrespective of variation due to speaker accommodation to different interaction partners). As Bülow et al. (2017: 59) underline, there are currently few studies in dialectology which systematically take into account intra-individual variation over different periods of time. With the concept of intra-individual variation (IAV) we refer to speaker-inherent variation which occurs independently of the context or communication partner, i.e. in the same style of speech in similar situations.[6] To emphasize on the importance of IAV in

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5.   Georg Wenker started to conduct the first systematic dialect geographic survey in the German-speaking area in 1876. With the aid of local schoolmasters and their pupils, he and his successors collected dialect questionnaires from about 50.000 locations all over the German-speaking world. In 1926 the first volume of the *Deutscher Sprachatlas* (DSA) appeared.

6.   We do not wish to indicate that intra-individual variation is not driven by various factors. We wish only to point out that neither the base dialect nor the idiolect can be seen as a strict homogeneous system.

dialectology is less about the question of whether variation can be explained due to concrete factors or not, it rather deals with the fact that the homogeneity assumption is problematic from both a theoretical and an empirical perspective.

Drawing on Complex Dynamic Systems Theory (CDST) we will argue that we systematically have to take IAV into account over different periods of time in our studies (Bülow et al. 2017: 59). CDST is a metatheory of change with wide transdisciplinary implications (cf. Larsen-Freeman 2017). It is therefore a suitable framework to describe and explain variability, development, and change as a process in time. Although CDST is a metatheory, it still warrants object theories.[7] However, as Larsen-Freeman (2017: 38) points out, CDST might challenge linguists to think differently. The application of CDST to applied linguistic research, for example, has brought a paradigmatic shift in this field (cf. Larsen-Freeman 2017: 25; de Bot 2015: 87). It introduced, for instance, the ideas of nonlinearity and interconnectedness to the discipline. Furthermore, CDST-inspired research emphasizes the importance of variability in general and of IAV in particular. In the following section we would like to elaborate on some theoretical aspects before we underline empirical evidence for the necessity to deal with IAV in dialectology.

2.1   IAV from a theoretical perspective

That studies on IAV are a desideratum may come as a surprise; they are urgently needed, however, to validly generalize the group-specific level of inter-individual variation (cf. Lowie 2017; van Geert 2011; Molenaar & Campbell 2009; Molenaar 2008, 2004). Usually we assume that the variability of our measure is the result of the variability due to true score on the one hand and the variability due to random error on the other. True score in the initial definition given by Lord & Novick (1968) is defined as the mean of a time series of observed scores obtained with one individual person. This means that true score is fundamentally based on IAV. The second definition of true score that is very widely accepted in quantitative linguistics is based on inter-individual variation (IEV), in terms of the distribution of individual differences of observed scores in a homogeneous population. Following the so-called classical ergodic theorems (cf. Molenaar 2009, 2008, 2004), this means that the two definitions of true score are fundamentally different (cf. Molenaar 2004), "leading to qualitatively different types of test theory" (Molenaar 2009: 217). We have to explain this in more detail: The classical ergodic theorems claim that "the structure of IAV is equivalent to the structure of IEV only if the structure of

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7.   Larsen-Freeman (2017: 23) lists a few linguistic object theories (Construction Grammar, usage-based approaches, etc.) which are aligned with the above-mentioned metatheory of complex dynamic systems.

IAV is homogenous in time (no trends, cycles, or other forms of time-dependent changes of the characteristics of the time serial IAV)" (Molenaar 2009: 217).[8] An ergodic system would show the same behavior over different measurements over different points in time; thus, a process is ergodic if its time average is the same as its average over the probability space. Due to the fact that language dynamics is non-linear, sensitive to initial states and heterogeneous (cf. de Bot et al. 2007), ergodicity cannot be assumed in the time dimension. Language change as well as the development of the idiolect are non-ergodic processes (cf. Lowie 2017: 127). This means that inter-individual and intra-individual linguistic variations are not equivalent and not comparable (Molenaar 2004: 202). As a consequence, group studies cannot be used to study language dynamics over time. What follows from this is that it is "necessary to study the structure of IAV for its own sake, i.e. by dedicated time series analysis" (Molenaar 2009: 217), ideally having many data points of the same individual over time (cf. Lowie 2017: 130; Penris & Verspoor 2017; Siegler & Crowley 1991). Lowie (2017: 123) summarizes:

> If we want to test hypotheses about the grand sweep effects of factors affecting language use at one moment in time, traditional group studies using statistics based on the Gaussian distribution are the most appropriate method. But if we are interested in investigating the changing relations in complex adaptive or dynamical systems, we should use nonlinear analyses of longitudinal data in which the denseness of the observations is adjusted to the expected rate of development.

This brings us to the empirical perspective. Unfortunately, we cannot provide dense data here but we can point to the high degree of IAV we usually have in our dialect recordings (Section 5.1).[9] Furthermore, we will analyze data of the same individuals 13 years apart to show patterns of intra-individual development over time (Section 5.2).

2.2   IAV from an empirical perspective

Crucially, attention has always been given to the individual variability in variationist linguistics, both from a synchronic and from a diachronic (*real-time*) perspective. Synchronically, the patterned variability within individuals and small social groups is one of the fundamental results of variationist linguistics. Speech variation

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8.   Test theory that is based on the IEV definition of true score requires strong homogeneity assumptions which are impossible to meet even in a small speech community. For further details about these homogeneity assumptions the reader is referred to Molenaar (2009: 214–215).

9.   Many dialectologists continue to work as if intra-individual variation is of no or of secondary importance.

in the individual is often examined in the context of style or in the context of discourse analysis (Coupland 1984; Labov 1966). One of the first accounts of stylistic variation and its relationship to language change was laid out in Labov's (1966) pioneering study on the Lower East Side. He showed how one individual would range from zero usage of a phonological variant in one particular speech style to near categorical usage of the variant in another style.

The variation shown in different styles seemed to follow a pattern that was determined by the informant's social class, the formality of a situation as well as the variant inventory available within a speech community (cf. Chambers 1995: 21; Chambers & Trudgill 2009: 57–69). Numerous studies point to numerous extra-linguistic factors that might influence the use of a specific variant in a specific situation (for a brief summary see Vergeiner 2019: 28–32).

However, the entire range of individual variability cannot be explained by concrete, objectivistic factors like social class, age or gender. Already Schuchardt (1972 [1885]: 59) was aware of rather arbitrary variation exhibited by the individual: "Have somebody who does not know why you ask him to do it repeat a single word thirty, fifty, or eighty times in a row and you will find very marked variations in pronunciation".[10] Milroy (1987: 131) makes the same point: "there is a large residue of systematic variation between individuals which cannot be characterized in any clear way by dividing speakers into further subgroups". At the same time Milroy's statement exposes the fact that variationist linguists base their hypotheses on how languages change and vary on an underlying homogeneity assumption, i.e. the assumption that groups of people sharing the same socio-demographic background, attitudes, etc. use the same variants in the same style of speech in similar situations.

This kind of homogeneity assumption, which deals in particular with inter-individual comparison, has been taken as a substantial precondition for the successful paradigm of quantitative sociolinguistics and dialectology – but the shortcomings of this approach are obvious. It ignores the theoretical objection mentioned above and the empirical evidence that individuals vary a lot in the same style of speech in similar situations (independently of the context or communication partner). One specific goal of this study is to show that we have to take into account intra-individual variation also in dialectology to investigate morphological phenomena, in particular the use of plural verb paradigms.

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10. "[M]an lasse Jemanden der nicht weiss worauf es ankommt, ein Wort vielmal, 30, 50, 80 Mal hintereinander sagen, und man wird starke Schwankungen der Aussprache wahrnehmen" (Schuchardt 1972 [1885]: 28).

3. Plural verbs in Bavarian dialects of Salzburg

In general, for historical and present-day varieties of German, three different types of plural verb paradigms can be distinguished (cf. Schirmunski 1962 [2010]: 522; Rabanus 2008, 2005): the one-form plural, the two-form plural, and the three-form plural (cf. Table 1). Plural verb paradigms with only a single morpheme for all forms ("one-form plural"), such as in Standard (British or American) English, are characteristic of, for example, most Alemannic and Low German dialects. Plural paradigms with two distinct morphemes – one for the 1/3PL and one for the 2PL[11] – ("two-form plural") are used in Standard German and many regional Bavarian vernaculars. Plural paradigms with three morphemes – one for each person – ("three-form plural") can be found, for example, in MHG (for strong and weak verbs) or in South Bavarian base dialects.[12]

Table 1. General types of plural verb paradigms

Plural paradigms	Variety	'to take'	Category	Morpheme	Label
Three-form plural	MHG	*nëm-e-n*	1PL	-EN	A
		nëm-e-t	2PL	-T	B
		nëm-e-nt	3PL	-NT	C
Two-form plural	Standard German	*nehm-e-n*	1PL	-EN	A
		nehm-t	2PL	-T	B
		nehm-e-n	3PL	-EN	A
	Regional Bavarian Vernaculars	*nem-e-n*	1PL	-EN	A
		nem-ts	2PL	-T	B
		nem-e-n	3PL	-EN	A
One-form plural	Eastern High Alemannic	*nem-t*	1PL	-NT	C
		nem-t	2PL	-NT	C
		nem-t	3PL	-NT	C

As Table 1 indicates, the paradigms can be divided into different types according to the abstract form of the morphemes. To better illustrate this and to reduce complexity, we identify the usage of the morpheme {-*en*}/-EN with the letter A, {-*et*}/-T with B, and {-*ent*}/-NT with C.[13] The MHG reference system then corresponds to

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11. Rabanus (2004: 345) shows for dialects in Bavarian Swabia that other combinations are also possible, e.g. 1PL vs. 2PL = 3PL.

12. A relevant example for the South Bavarian dialect of Pernegg (Carinthia) is given by Lessiak (1963: 203) – *wir mōhn* 'we make' – *dös moxts* 'you make' – *sö mōhnt* 'they make'.

13. As in Rabanus (2004, 2008) the capital letters -EN, -T, and -NT symbolize suffixes. The letters indicate sound classes which correspond to the morphemes {-*en*}, {-*ets*}, and {-*end*}. Depending

the notation ABC, whereas Standard German and the regional Bavarian vernaculars correspond to ABA (cf. Table 1). As for phonological change, the MHG form inventory can be used as a reference system for morphological change. The morphology of plural verbs (present indicative) points back to MHG {-*en*} '1PL', {-*et*} '2PL' and {-*ent*} '3PL' (Paul 2007: 240–242; cf. Table 1). Even if the inventory of morphemes is relatively stable from MHG to the present day, Table 1 also shows that the MHG plural verb paradigm has developed differently in the German dialect regions (cf. Rabanus 2008; Schirmunski 1962 [2010]: 522). Rabanus (2008: 91–257) provides a detailed overview of the different developments in High German dialects of Germany. He compared data from Wenker's questionnaires with more recent data from modern regional linguistic atlases. For the Bavarian dialects, some clear tendencies emerge. On the one hand, Rabanus (2008: 259–300) points out that we have to take into account many internal linguistic factors to explain variation and change in plural verb paradigms. On the other hand, a systematic syncretism occurs only between the 1/3PL, which is why we do not have to elaborate on the 2PL in detail. The morpheme for the 2PL has always remained clearly distinguishable from the morphemes of the 1/3PL over the centuries. To simplify, one can say for the area under investigation that the MHG morpheme of the 2PL {-*et*}/-T has evolved to {-*(e)ts*}/-T. An enclitic process of the personal pronoun *eß* (MHG *ëz*) with the morpheme {-*et*}, thus forming the suffix {-*(e)ts*} took place almost regularly in most Bavarian dialects; the MHG ending {-*(e)t*} is only preserved in South Bavarian dialects (cf. Scheutz 2016: 84–85).

The change from a three-form plural system to a two-form plural system (present indicative) from MHG to Standard German (cf. Table 1) can be explained in terms of several internal linguistic factors. From a structural perspective, this change is, for instance, associated with more general principles, e.g. the principle of relevance (cf. Bybee 1985). Dammel (2011: 96–99) has found that allomorphy in German is removed for categories that are less relevant to the verb. As for verbs in German, it has been argued that the categories of tense and mood are distinctively profiled, whereas the categories of person and number lose importance (cf. Nübling & Dammel 2004). To assess the relevance of morphological categories, there are numerous approaches and theories (cf. e.g. Wurzel 1984; Bybee 1985; Werner 1987) that we cannot go into detail here (for a summary, cf. Dammel 2011; Rabanus 2008). Instead, we wish to elaborate on the fact that there were already verbs in MHG that had a two-form plural paradigm, namely the so-called preterite-present verbs (*Präteritopräsentia*). This class of verbs has the form of strong verbs in the past tense with a present tense meaning. Accordingly, these verbs have the morpheme {-*en*}/-EN for both the 1PL and the 3PL (MHG *wir wiȝȝ-en – si wiȝȝ-en;*

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on the stem final sound and the dialect region their allomorphic realization can contain very different sounds.

'we know' – 'they know') (cf. Birkmann 1987: 190–192; Paul et al. 2007: 268). In addition, the representatives of this verb class have a high token frequency (cf. Dammel 2011: 98).[14] In this context, it could be important that the 1/3 person (PL) are the most used slots in the person category (cf. Dammel 2011: 98). Structurally speaking, the paradigm of the preterite-present verbs was/is certainly an important role model on the way to the two-form plural system.

Whereas the two-form plural (ABA) is firmly established in Standard German and in the regional Bavarian vernaculars, the MHG three-form plural (ABC) has survived in various Bavarian base dialects (*mi(a) keem-an – es kem-dds – se keem-and*; 'we come – you come – they come'). Data from Wenker's questionnaires indicate for the beginning of the 20th century a distinction between two- and three-form plural paradigms in both the Bavarian dialects of Germany (cf. Rabanus 2008) and the Bavarian dialects of Austria (cf. Wiesinger 1989). Whereas, for instance, the three-form plural (ABC; cf. Table 2) extends through the Eastern parts of Lower Bavaria (Rabanus 2008: 245), in the West Central Bavarian dialects of Upper Bavaria the two-form plural (ABA) predominates. This kind of dichotomy is also reported by Wiesinger (1989: 45–50) for the Bavarian dialects in Austria. While the MHG-based morpheme {-ent}/-NT for the 3PL in some dialect regions was preserved as {-end}/-NT, in other regions this morpheme was systematically replaced by {-en}/-EN in the third person. According to Wiesinger (1989: 48), this latter process leads to the two-form plural (ABA) mainly in Tyrol, Burgenland, in large parts of Styria and Upper Austria, and (with few exceptions) in Lower Austria. The morphological dichotomy between the 1PL and the 3PL, i.e. the three-form plural (ABC), has been preserved especially in Carinthia, South Tyrol, and the South Central Bavarian transition zone in Salzburg. Figure 2 – which is a rough abstraction of Wiesinger's (1989) analysis of Wenker's questionnaires – shows that Salzburg is in the three-form plural zone.

Table 2. Types of plural verb paradigms in the German-Austrian border region

NUM	PS	Three-form plural				Two-form plural			
		Type 1		Type 2		Type 3		Type 4	
PL	1. (*mi(a)*)	*keem-an*	A	*keem-and*	C	*keem-an*	A	*keem-and*	C
	2. (*es*)	*kem-dds*	B	*kem-dds*	B	*kem-dds*	B	*kem-dds*	B
	3. (*se*)	*keem-and*	C	*keem-an*	A	*keem-an*	A	*keem-and*	C

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14. Lieberman et al. (2007) found that the rate of change of English verbal morphology (regarding regularization processes) depends on the token frequency. Carroll et al. (2012) validate this result for German verbal morphology. Additionally, they showed that change also interacts with type frequency and socio-historical changes.
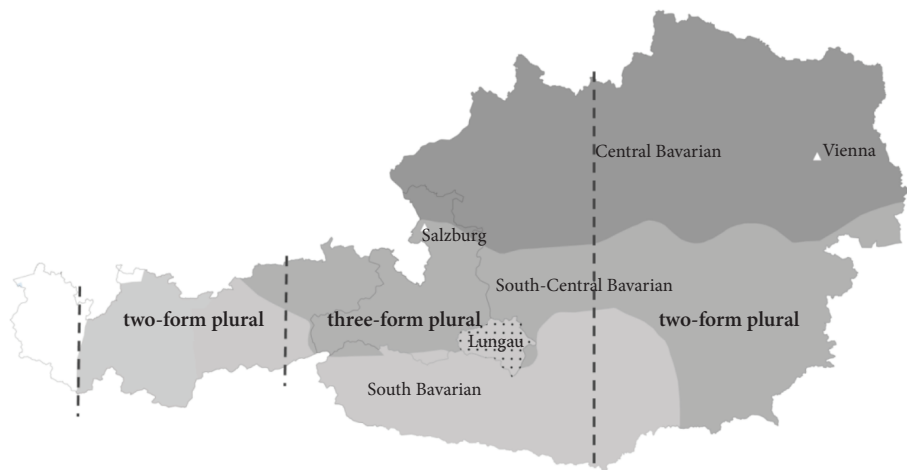
Figure 2. Distribution of two- and three-form plurals in Bavarian dialect regions of Austria according to Wiesinger (1989); compiled with www.regionalsprache.de

What Wiesinger (1989) describes as homogeneous zones with relatively sharp isoglosses is an abstraction that only partially corresponds to the linguistic reality.[15] Drawing on additional data, Mauser (1998) found for the Lungau that Wiesinger's isogloss of the {-(e)nd} morpheme needs to be corrected. Other sources and findings also provide evidence that the situation is and was more complex (cf. Scheutz 2017).

Recent findings show that we not only have to distinguish between the three-form plural, the two-form plural and the one-form plural but also between several types of three-form and two-form plurals (Scheutz 2017; Rabanus 2008, 2005; Mauser 2007, 1998). Mauser (2007: 67), for example, distinguishes between two types of three-form plurals and two types of two-form plurals for the base dialects in the German-Austrian (Salzburg-Bavarian) border region (cf. Table 2).

In addition to the historic three-form plural (Type 1, ABC), Mauser's informants often used a variant of the two-form plural (Type 3, ABA) that is structurally similar to the pattern of the regional Bavarian vernaculars (cf. Table 1). As in the regional Bavarian vernaculars, the suffix of the 1PL is extended to the 3PL (cf. Mauser 1998: 306). In the second variant of the two-form-plural (Type 4, CBC), the suffix of the 3PL is transferred to the 1PL. Furthermore, some speakers use a variant which is the reversed form of the historical MHG variant (Type 2, CBA); that is to say, the suffix of the 3PL is transferred to the 1PL, whereas the suffix of the 1PL is transferred to the 3PL.

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15. Note that Wiesinger (1989: 37) reports unsystematic variation, for example, the occasional use of {-end} for the 1PL.

The fact that all these different types of plural verbs are used not only at one location in the area under investigation but also by the same informant at one point in time can be demonstrated with data from the "Salzburg Dialect Atlas" <https://www.sprachatlas.at/salzburg/>, which recently (2016/2017) recorded data from older (> 65 years of age) and younger (< 35 years of age) informants from the Salzburg region (Scheutz 2017). These data indicate considerable local inter- and intra-individual variation which tends to challenge the homogeneity assumption of the quantitative sociolinguistic paradigm. This leads to our specific research questions:

– RQ$_1$: To what extent and in what direction has the use of plural paradigms changed in the last hundred years in the Bavarian base dialects of Salzburg?
– RQ$_2$: What types of plural paradigms are used by the informants and how (and why) do they vary?
– RQ$_3$: Can the degree of inter- and intra-individual variation be associated with particular factors and/or contexts?
– RQ$_4$: Is it possible to identify specific verbs as the vehicles of innovation?

4.   Method

Any empirical study that deals with language variation and change needs to include evidence for the same population or at least for a comparable population from at least two different points in time. In quantitative variationist linguistics, two approaches have been established: *apparent-time* and *real-time* analysis. Both have weaknesses and strengths (Cukor-Avila & Bailey 2013; Chambers & Trudgill 2009: 149–151). *Real-time* studies, for example, are difficult to implement. As Chambers and Trudgill (2009: 149) put it:

> Too many other factors affect the sample group, such as unwillingness to participate a second time, emigration not only from the survey area but possibly even from the country so that some members cannot be located, death, and so on. A perfect replication is usually ruled out in practice.

Therefore, *apparent-time* studies dominate dialectological fieldwork. These studies have the advantage that the identical method with the focus on the relevant variable of interest can be applied to two or more generations. Still, the question remains whether younger generations reflect language change in their linguistic behavior. The hypothesis that the synchronic comparison of different age cohorts might reflect the actual diachronic change is at least questionable. This can only be assumed

to a limited extent because even external linguistic factors such as age and social class interact with each other over time and do not remain constant (cf. Bülow et al. 2017: 59–61). In regard to this paper another problem might arise, as it is not clear whether the different generational linguistic behavior reflects the same speech level within the dialect-standard continuum. Therefore, *real-time* studies are actually the better option to adequately study language change and variation:[16] "the ideal method for the study of change is diachronic: the description of a series of cross sections in real time." (Labov 1966: 200) *Real-time* studies "can provide crucial data for studies of innovation, diffusion, social transmission, mechanisms of change, and many other fundamental concerns" (Chambers & Trudgill 2009: 149). There are two fundamental approaches to study language variation and change in *real-time*: Researchers (1) "can compare evidence from a new study to some pre-existing data, or (2) they can re-survey either a community (through a trend survey) or a group of informants (through a panel survey) after a period of time has elapsed" (Cukor-Avila & Bailey 2013: 254).

We pursue both approaches. The investigated area is the Federal Province of Salzburg including some neighboring Bavarian locations, as this region spreads over Central-, South-Central- and South-Bavarian dialect zones. Starting from the historical descriptions based on Wenker's questionnaires collected in the 1920/30s (see Section 2.2) and Wiesinger's (1983) common classification of Bavarian dialects, we compare current data from 2016/17 (that stem from an enquête implementing an *apparent-time* approach) with data from previous investigations from the 1970/80s in a real-time trend survey (see Figure 3).

In addition, we also conducted a *real-time* panel survey in which the same informants were recorded within a span of 13 years. This data will provide insights into intra-individual variation over time of our 12 informants (see Figure 4).

SPSS (version 24) and R (lme4 package version 1.17 in R Version 3.1.2) were used to run the statistics. To find significant differences ($p < 0.05$) we conducted ANOVAs, chi-square tests, and a mixed modell regression analysis. To provide additional subgroup analysis we used post hoc tests (Tukey, Hochberg's GT2).

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16. Chambers and Trudgill (2009: 149) agree: "Ideally, one would like to have the results of a survey designed to elicit a particular variable at a particular time and then a replication of the same survey given to the same population after a lapse of several years".
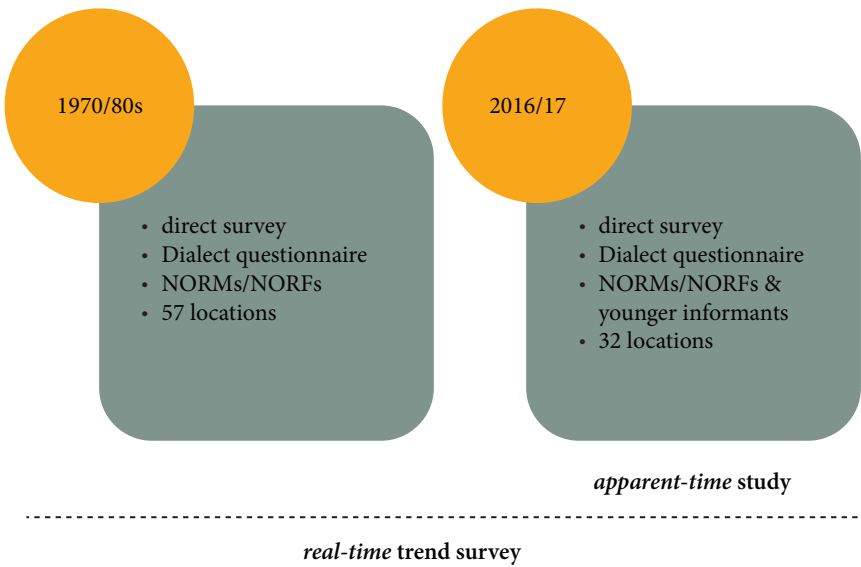
Figure 3. Methodological design of the *real-time* trend survey
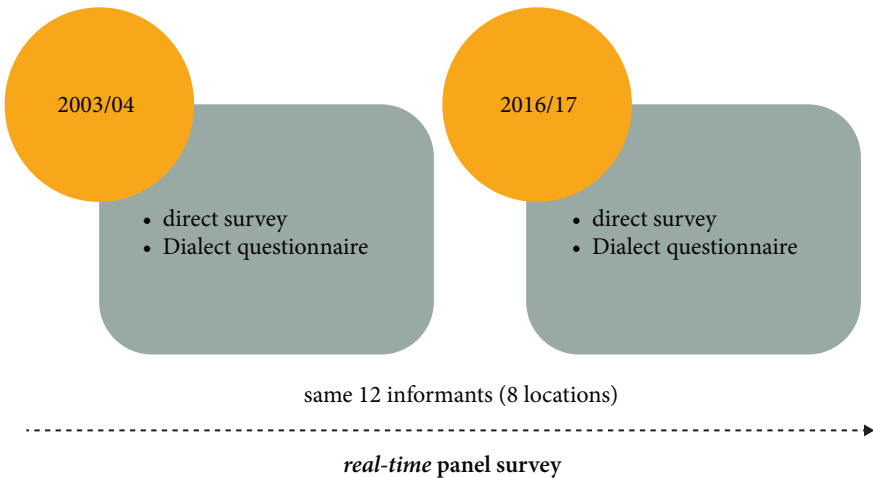

Figure 4. Methodological design of the *real-time* panel survey

4.1 Survey procedures

All analyzed data were obtained directly by using dialect questionnaires in Salzburg and the adjacent German border region. Those questionnaires have broad similarities, especially in terms of verb paradigms. All data were gathered by trained fieldworkers. The direct interviews, however, were conducted under varying circumstances: The 1970/80s survey was carried out by trained fieldworkers such as Herbert Tatzreiter, Werner Bauer, Franz Patocka and Hermann Scheuringer (all University of Vienna). The initial goal of this survey was to document the base dialect in the rural areas of Salzburg. The data were obtained via a dialect questionnaire completed by several informants at each location. All answers were immediately transcribed in Teuthonista[17] during the interview but unfortunately audio recordings were only occasionally made. In addition, every transcript provides comments on the informants as well as general remarks on phonological (and rarely morphological) aspects. But so far, there has been no systematic analysis of these data with respect to morphological issues. The 2016/17 surveys were conducted by two trained fieldworkers (Hannes Scheutz, Dominik Wallner) and all of these interviews were tape-recorded. The fieldworkers used mostly basic translation- and cloze-tests included within the dialect questionnaire.

To examine intra-individual variation over a period of 13 years, we compared two on-site questionnaire recordings of the same twelve dialect speakers. The 2003/4 data were collected in an EuRegio project (Scheutz 2007), and the 2016/17 recordings were carried out within the SFB project *German in Austria* (cf. Budin et al. to appear). The older questionnaire had been designed to collect data on various phonetic, lexical, syntactic and morphological phenomena (cf. Scheutz 2007). This questionnaire was then adapted and shortened for the 2016/17 survey focusing on plural verb paradigms. Also the data in both studies were audio-recorded.

4.2 Material and stimuli

The dialect questionnaires used here did not correspond in length but rather in style to similar questionnaires which have been employed for larger dialect atlas projects (cf. *Sprachatlas von Niederbayern* [SNiB]; *Sprachatlas von Oberösterreich* [SAO]; *Deutsch in Österreich* [DiÖ]). All of the items in the above-mentioned surveys were essentially translation and cloze tests. Whereas the questions used in the 1970/80s survey concentrated on single words and verb paradigms, the recent

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17. Teuthonista is a special phonetic transcription system mainly used in German dialectology.

questionnaires were more sophisticated. In addition to single items, sentences and phrases were included to provide not only phonological and morphological, but also morpho-syntactical and syntactical dialect features. To ensure a coherent organization of content of the questions, the items were generally connected to semantic fields, encouraging the informant to follow a certain topical path. The 1970/80s survey mainly contained isolated verb paradigms. In rare cases when the verbs were placed in a short phrase or sentence the results had a restricted validity owing to assimilations of verb final /-d/ with the anlaut of the following word (e.g. *liŋd + dǫ > liŋdǫ* 'we/they lie here'). To avoid this effect, the follow-up questionnaires from 2003/4 and 2016/17 collected verb forms in isolated word paradigms as well in environments where this kind of assimilation was not possible.

In other cases where the final sound is not a dental, the interpretation was sometimes less simple, such as in *schlɔŋ* 'we hit', *schlɔks* 'you hit', *schlɔŋk* 'they hit' (Zederhaus). Both the 1PL and 3PL end with a velar sound even though more sound material was transcribed for the 3PL. Obviously, there is a clearly discernible difference in form. This is why Mauser (1998: 304–305) argues that these forms are allophones of the allomorph {-*nt*}/-NT, which appear after a bilabial or velar nasal. We decided to subsume these cases under the three-form plurals because this distinction was systematically used by the informants in Zederhaus (see *leŋ* 'we dress', *leŋk* 'they dress' and *liŋ* 'we lie', *liŋk* 'they lie' (ABC)).

4.3   Informants and locations

Furthermore, the informants of the 1970/80s and 2016/17 survey were chosen by the same socio-demographic features (NORM/NORFs). In detail: For the first set of data (1970/80s) the questionnaire was not completed by one particular person. On average six individuals (SD = 1.8) were polled at every location, mainly farmers representing stereotypical NORMs and NORFs. Originally, interviews were conducted in 57 locations throughout Salzburg.

For the Salzburg Atlas project of Hannes Scheutz (2016, 2017) one NORM/ NORF (> 65) per location and one younger individual (< 35) was interviewed. The latter group consisted of young professionals (mostly of artisanal background) without higher school education.

To study intra-individual dynamics of language variation and change, we thirdly recorded twelve informants from eight locations, all of which are situated within the Austrian-German (Salzburg-Bavarian) border region. Our informants are all native speakers of the base dialect (six men and six women) and were around 60 years old (Ø = 60, SD = 6) at the time of the second data gathering in 2016/2017. It is important to note that this group does not represent the classical NORMs

and NORFs. They are "professionals" who have regular contact with the standard varieties on the Austrian and on the German side of the border as well as with regiolectal varieties.

5.   Results

As it is the aim of the present contribution to investigate inter- and intra-individual variation and change in the use of plural verb paradigms of Salzburg's base dialects, we will, in the following, first analyze the inter-individual variation and then report on the intra-individual variation. As a general result, the plural verb morphology shows considerable variation as well as an interesting change. On the basis of *real-time* data, we found a change over the last hundred years from the type 1 three-form plural (ABC) via the type 4 two-form plural (CBC) to the type 3 two-form plural (ABA) in Salzburg's base dialects (see Section 5.1). This change is still in progress. Overall, four different variants of plural verb paradigms can be identified in the current usage of our informants (see Section 5.2). Moreover, with respect to intra-individual variation, up to four types of plural verb paradigms were used by the same informants.

In Section 3, we have reconstructed the state of plural verb formation in the province of Salzburg at the beginning of the 20th century. In Section 5.1, we will now compare data from the 1970/80s with recent data gathered in 2016/17 (cf. Scheutz 2017) by means of a *real-time* trend survey. Furthermore, with the data from 2016/17 we have conducted an *apparent-time* study in which we have compared older (> 65 years) and younger (< 35 years) informants. In Section 5.2, we present a *real-time* panel survey of twelve informants over 13 years.

5.1   Plural verb variation and change from the 1970/80s to today

As we mentioned in Section 3, plural verb paradigms have developed differently in the Bavarian base dialects. According to Wiesinger (1989), who mainly analyzed Wenker's questionnaires from the 1920/30s, we should find mostly three-form plurals of type 1 (ABC) in Salzburg's base dialects. Mauser (1998, 2007), however, who analyzed dialect recordings from Salzburg at the end of the 20th century, demonstrates much inter-individual variation for this region. The question remains what happened in the meantime. Luckily, as explained in Section 4, it is possibly to fill this gap with data from the 1970/80s.

5.1.1   *Inter- and intra-individual variation in the 1970/80s*

Data were gathered in direct surveys between the 1970s and 1980s in 57 locations of the province of Salzburg (see Figure 5; Appendix, Table 15).

Figure 5. Distribution of locations over Salzburg – 1970/80s; map compiled with www.regionalsprache.de

According to Wiesinger's (1983) classification of dialect areas, thirty-nine of the locations were situated in the South Central Bavarian transition zone, and nine locations in the South Bavarian dialect region and the Central Bavarian dialect region, respectively (cf. Appendix, Table 15). Note, however, that this classification only provides a very rough dialectological orientation.

On average six informants (all NORMs/NORFs) (SD = 1.8) were interviewed per location to complete one questionnaire (cf. Appendix, Table 15). The questionnaire contained a number of verbs, but as a consequence of the primarily phonological focus of the traditional survey the queries and notations on verb morphology were handled quite differently, and not every verb and/or every form of the plural verb paradigm was tested. Overall, plural paradigms of about 22 verbs (with special focus on strong verbs) were elicited systematically at every location (cf. Table 3).

Table 3. Verb classes and verbs

Verb class	Verb
strong verbs	*ziehen* 'to pull'; *anlegen/anziehen* 'to dress'; *stehen* 'to stand'; *sehen* 'to see'; *gehen* 'to go'; *lassen* 'to let'; *kommen* 'to come'; *lügen* 'to lie'; *fliegen* 'to fly'; *liegen* 'to lie'; *verlieren* 'to lose'; *nehmen* 'to take'; *schlagen* 'to hit'; *fangen* 'to catch'; *tun* 'to do'; *geben* 'to give'; *schieben* 'to push sth.'
preterite-present verbs	*müssen* 'to have to'; *dürfen* 'to be allowed to do sth.'; *wissen* 'to know'
(weak) suppletive verbs	*sein* 'to be'; *haben* 'to have'

Altogether, we analyzed 752 complete plural verb paradigms given by 344 informants from 57 locations. Generally, in this dataset, the two-form plural dominates (66.5%) over the three-form plural (33.5%). Surprisingly, the informants most commonly use the type 4 paradigm (CBC) in 52.4% of cases (cf. Table 4). According to what was said in Section 3, we would have expected type 1 (ABC) or at least type 3 (ABA) to prevail.

Table 4. Use of plural verb paradigms (*n* = 752) related to types – 1970/80s

Three-form plural		Two-form plural	
Type 1 (ABC)	Type 2 (CBA)	Type 3 (ABA)	Type 4 (CBC)
29.4%, (221)	4.1% (31)	14.1% (106)	52.4% (394)

Although the two-form plural prevails in this dataset, there are still locations where the use of the type 1 three-form plural (ABC) is clearly preferred. Type 1 is used in all cases in Unternberg, Kendlbruck and Sauerfeld, all located in the South Bavarian dialect region of Salzburg (known as Lungau). Also, the other six locations of the Lungau show in more than 80% of cases the type 1 plural verb paradigm. This is in line with Mauser's (1998: 24) findings that the Lungau is regarded as a particularly archaic dialect region. In addition, two locations (Hollersbach, Wald im Pinzgau) in the very south-west of Salzburg (known as Pinzgau) show in more than 50% of cases the type 1 paradigm (ABC).[18]

However, the type 1 three-form plural is not used at all in seventeen locations (30% of locations). Here, no spatial distribution of these type 1-less locations can be recognized, they seem to spread randomly over the province of Salzburg (see Figure 6), except for the Lungau.

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18. Dialects in the very south-west of the Pinzgau show many prototypical South Bavarian dialect features.
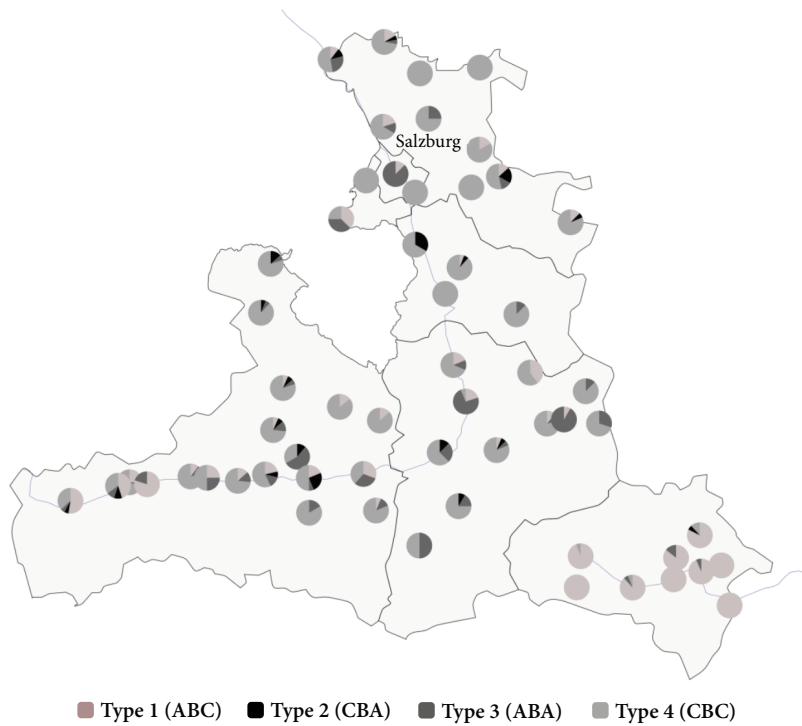
Figure 6. Spatial distribution of plural types; map compiled with www.regionalsprache.de

Regarding the use of the type 1 three-form plural an ANOVA validates the descriptive observation. The statistical test shows that the dialect region matters ($F = 42.7$, $p < 0.001^*$, $df = 2$). However, a post hoc analysis (Tukey, Hochberg's GT2) reveals that only the difference between the South Bavarian and the South Central Bavarian transition zone ($M = 70\%$, $SD = 7.8$) as well as the difference between the South Bavarian and the Central Bavarian region ($M = 75\%$, $SD = 9.9$) were significant at $p < 0.001^*$. The difference between the South Central Bavarian transition zone and the Central Bavarian dialect region ($M = 5.6\%$, $SD = 7.8$) was not significant ($p = 0.76$). Regarding plural verb paradigms the homogeneity assumption does not even hold on the group level with respect to the dialect regions.

For the purpose of this chapter, it is striking that most locations (47 out of 57, 82.5%) show variation. The locations which show no variation at all have either type 1 (4 locations) or type 4 (6 locations) plural verb paradigms. In contrast, all four possible types are used in twelve locations (21%); three respectively two different variants are used in eighteen locations (32%).

Variation is evident not only for most locations but also for all the twenty-two verbs (cf. Table 5). Thirteen out of twenty-two verbs (59%) show all four types,

seven verbs (32%) show three types and only two verbs show two types (9%). A mixed model reveals that the verbs 'to be' and 'to lose' are distributed in a significantly different way over the four paradigm types than the other verbs ($\beta = 8.00$, SD = 1.89, $p < 0.01^*$). That might be due to the fact that 'to be' was gathered in all 57 locations whereas 'to lose' was only completely conducted in seven locations. In particular 'to be' shows strongly the type 4 two-form plural (CBC) (see discussion in Section 6). Furthermore, a kind of hierarchy becomes apparent. All verbs which have only three types lack type 2 (CBA). The two verbs which have only two variants lack type 2 (CBA) and type 3 (ABA).

Table 5. Classified plural types by verb ($n = 752$) – 1970/80s

Verb	Type 1 (ABC)	Type 2 (CBA)	Type 3 (ABA)	Type 4 (CBC)	Total
'to pull'	13	1	1	15	30
'to stand'	10	0	6	22	38
'to see'	11	2	9	31	53
'to go'	14	0	5	28	47
'to lie'	5	0	1	6	12
'to be allowed to do sth.'	15	2	4	13	34
'to let'	14	1	4	12	31
'to fly'	3	0	0	8	11
'to know'	9	1	8	3	21
'to come'	15	0	3	26	44
'to have'	14	1	6	31	52
'to be'	9	1	2	45	57
'to take'	14	0	8	24	46
'to hit'	9	2	7	19	37
'to give'	11	3	9	21	44
'to dress'	8	9	10	10	37
'to lie'	12	6	5	14	37
'to catch'	4	2	1	9	16
'to lose'	1	0	2	4	7
'to do'	12	0	7	25	44
'to push sth.'	5	0	0	6	11
'to have to'	12	1	6	22	41
Total	220	32	106	394	752

Data from the 1970/80s show considerable variation regarding the use of plural verb paradigms. The most homogenous dialect region regarding plural verb paradigms is the South Bavarian area (Lungau), whereas the other two regions seem to be very heterogeneous. At the group level, surprisingly, the type 4 two-form plural (CBC) predominates in Salzburg's base dialects (except that of the Lungau),

although we can still find evidence that all the other types are attested in a significant number as well. In what follows we compare the results from the 1970/80s with recent data from 2016/17.

5.1.2   *Variation and change from the 1970/80s to today: A real-time trend survey*

The 2016/17 survey was conducted with the aim of publishing a digital dialect atlas for the province of Salzburg, under the title "Salzburger Dialektlandschaften" <https://www.sprachatlas.at/salzburg/>. The method was very similar to the one used for the 1970/80s survey. In both surveys fieldworkers collected the data directly with the help of traditional dialect questionnaires (*Dialektfragebücher*). In both studies the target informants were NORMs and NORFs (> 65 years). In addition, Scheutz (2017) also gathered data from younger informants (< 35 years). Furthermore, the number of overlapping locations (23) and verbs elicited (8) is quite high. Therefore, we are able to compare both datasets in a *real-time* trend survey.

As mentioned in Section 4, 64 informants from two age cohorts (> 65 years, < 35 years) were recorded at 32 locations, i.e. one older and one younger informant at each location. Four of these are situated on the German (Bavarian) side of the border region (see Figure 7).

Figure 7. Distribution of locations over Salzburg – 2016/17;
map compiled with www.regionalsprache.de

According to Wiesinger's (1983) classification of dialect areas, nine locations are situated in the Central Bavarian dialect region, five locations in the South Bavarian dialect region, and eighteen locations in the South Central Bavarian transition zone (cf. Appendix, Table 6). In the recordings of 2016/17 only twelve plural verbs were elicited (cf. Table 6), yet in a very careful and consistent manner.

Table 6. Verb classes and verbs – 2016/17

Verb class	Verb
weak verbs	*nähen* 'to sew'
strong verbs	*ziehen* 'to pull'; *sehen* 'to see'; *kommen* 'to come'; *liegen* 'to lie'; *tun* 'to do'; *geben* 'to give'
preterite-present verbs	*mögen* 'to like so./sth.'; *können* 'to be able to do sth.'; *müssen* 'to have to do sth.'
(weak) suppletive verbs	*sein* 'to be'; *haben* 'to have'

Altogether, we analyzed 656 complete plural verb paradigms given by 64 informants at 32 locations. In total, the two-form plural dominates (80.8%) over the three-form plural (19.2%). In 2016/17, the informants now most commonly apply the type 3 two-form plural (ABA) in 45.6% of cases but also type 4 (CBC) is frequently used (cf. Table 7).

Table 7. Use of two- and three form plural types related to age cohort

n = 656	Three-form plural		Two-form plural	
Type	Type 1 (ABC)	Type 2 (CBA)	Type 3 (ABA)	Type 4 (CBC)
Younger	11.4% (37)	4% (13)	67.1% (218)	17.5% (57)
Older	14.5% (48)	8.4% (28)	24.2% (80)	52.9% (175)
Total	12.9% (85)	6.3% (41)	45.4% (298)	35.4% (232)

In comparison with the 1970/80s data, the type 1 three-form plural (ABC) and the type 4 two-form plural (CBC) have lost ground, whereas the use of type 3 two-form plurals (ABA) has largely increased. As chi-square tests reveal, the difference between the 1970/80s and the 2016/17 data is not only significant at the level of total results (χ^2 = 193.78, p < 0.001*, df = 3, Cramer's V = 0.372) but also if we only compare the NORMs and NORFs of both datasets (χ^2 = 42.031, p < 0.001*, df = 3, Cramer's V = 0.197).

However, the older informants in the 2016/17 dataset stick much more to the type 4 two-form plural (CBC, 52.9%) which was dominant in the 1970/80s data. By contrast, the younger informants clearly prefer the type 3 two-form plural variant (ABA, 67.1%). A chi-square test demonstrates a significant difference between the two age cohorts (χ^2 = 130.8, p < 0.001*, df = 3, Cramer's V = 0.45). In contrast to

the two-form plural types, there are no differences in both age cohorts regarding the type 1 three-form plural (ABC) (cf. Table 7) even if its use has lost ground in comparison to the 1970/80s dataset (cf. Table 4).
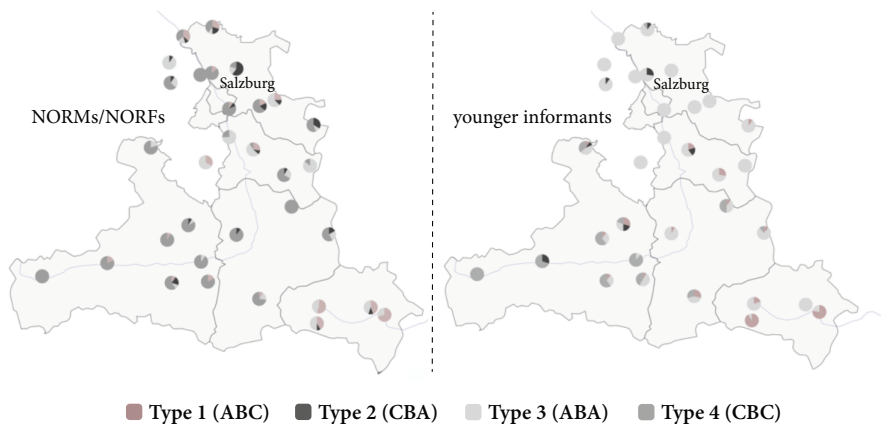

Figure 8. Spatial distribution of plural types compared to age cohorts; map compiled with www.regionalsprache.de

In the 2016/17 dataset, the type 1 three-form plural (ABC) is not used in eight locations (25% of locations). If we take the percentages of locations where the type 1 three-form plural (ABC) is still used as a reference, we must conclude that this type is spreading (used in 70% of the locations in the 1970/80s and 75% in 2016/17). This assumption is of course not valid if we look at the range of variants which were recorded at the same time. Regarding the spatial distribution of the type 1 three-form plural (ABC) in the 2016/17 data we can find a significant difference for the older age cohort (F = 13.531, p < 0.001*, df = 2). As for the 1970/80s dataset post hoc tests (Tukey, Hochberg's GT2) reveal a significant difference between the South Bavarian and the South Central Bavarian transition zone (M = 37%, SD = 7.1) as well as a significant difference between the South Bavarian and the Central Bavarian region (M = 33%, SD = 7.9) at p < .001. The difference between the South Central Bavarian transition zone and the Central Bavarian dialect region (M = 4%, SD = 5.8) is not significant (p = 0.779). The ANOVA also reveals a significant difference for the younger age cohort (F = 9.448, p < 0.001, df = 2). Again post hoc tests (Tukey, Hochberg's GT2) reveal a significant difference between the South Bavarian and the South Central Bavarian transition zone (M = 33%, SD = 8.6) as well as a significant difference between the South Bavarian and the Central Bavarian region (M = 39%, SD = 9.5) at p < 0.01. The difference between the South Central Bavarian transition zone and the Central Bavarian dialect region (M = 7%, SD = 6.9) is not significant (p = 0.590).

Although we find significant differences between the age cohorts and the dialect regions in the 2016/17 dataset, in fact, there is a striking degree of variation in some of the levels which (traditional) dialectologists assume to be homogeneous, namely on the level of location and the level of the individual. Both levels coincide in the present study, as we have only recorded one informant from each age cohort at each location. Table 8 relates the number of different types used in each location/informant to the age cohorts:

Table 8. Total use of plural types related to age cohorts

Number of used types ($n = 64$)	1 type	2 types	3 types	4 types
Younger	12	9	9	2
Older	3	13	12	4

Table 8 also indicates that the older informants show more variation than the younger informants. A chi-square test shows that the difference between the age cohorts is marginally not significant ($\chi^2 = 7.233$, p = 0.065, df = 3, Cramer's V = 0.336). Whereas 12 out of 32 (38%) informants are consistent in their use of plural verb paradigms in the younger group, only 3 out of 32 (9%) informants of the older group show consistency. At the same time this also means, however, that 49 out of 64 (77%) informants show considerable intra-individual variation. 77% of the informants are not consistent in how they form verbal plurals.

Table 9. Classified plural types by verb ($n = 656$) – 2016/17

Verb	Type 1 (ABC)	Type 2 (CBA)	Type 3 (ABA)	Type 4 (CBC)	Total
'to pull'	9	5	30	17	61
'to sew'	4	1	12	23	40
'to see'	10	0	23	19	52
'to come'	6	7	33	17	63
'to have'	7	4	20	29	60
'to be'	4	1	25	16	46
'to give'	4	4	30	21	59
'to lie'	10	4	18	24	56
'to like so./sth.'	5	4	22	21	52
'to have to do sth.'	10	5	30	12	57
'to do sth.'	9	3	24	17	53
'to be able to do sth.'	7	3	31	16	57
Total	85	41	298	232	656

Furthermore, almost every verb in the data sample (except 'to see') shows all four types of plural verb paradigms (cf. Table 9). No plural verb is consistently formed in Salzburg's dialects.

To sum up: The results indicate an ongoing change in Salzburg's base dialects. Whereas the type 1 three-form plural (ABC) is becoming less important, the use of the type 3 two-form plural (ABA) is strongly increasing. Even the South Bavarian dialect region (the Lungau), which seemed to be more consistent and homogeneous in the 1970/80s, shows remarkable variation and change in the 2016/17 data. This process, which is still far from complete, can be interpreted in the long run as advergence to the regional Bavarian vernaculars Austrian Standard German. Advergence can be observed in many dialect regions for many features. However, there are two developments that are noteworthy. First of all, the process does not seem to be linear, as the high percentages of type 4 two-form plurals (CBC) in the 1970/80s indicate. Second, the data show a great deal of inter- and intra-individual variation in the area under investigation, but it does not allow us to look at the intra-individual variation of the same informants over time. We will cover this aspect in the following section.

5.2   Intra-individual variation over time

In this section we compare the production of plural verb paradigms of the same twelve individuals over 13 years. Before looking in detail at the individual developments, we refer to trends within the group of informants.

First of all, a chi-square test reveals no significant difference between the use of plural verb paradigms in 2003/4 and 2016/17 (χ^2 = 5.066, p = 0.167, df = 3, Cramer's V = 0.119).

In the 2003/4 recordings, the type 3 two-form plural (ABA) clearly predominates in 91% of cases (cf. Table 10). According to the results we reported in 5.1, it is particularly surprising that the type 4 two-form plural variant (CBC) is only used in about 5% of cases (see discussion in Section 6). Furthermore, the type 1 three-form plural (ABC) is used in about 3% of cases, type 2 in 1%. Thus, in 2003/4 our informants from this data sample use two-form plural paradigms in 96% of cases.

Table 10. Trends within the groups

Number of used types (n = 359)	Type 1 (ABC)	Type 2 (CBA)	Type 3 (ABA)	Type 4 (CBC)
2003/4	4	2	124	7
2016/17	15	3	183	21

Of the twelve informants, six show no intra-individual variation in 2003/4. Three of the informants use three different types and the three remaining informants use two variants (see Figure 9). We could not find significant verb-specific correlations with the different variants (cf. Table 11).
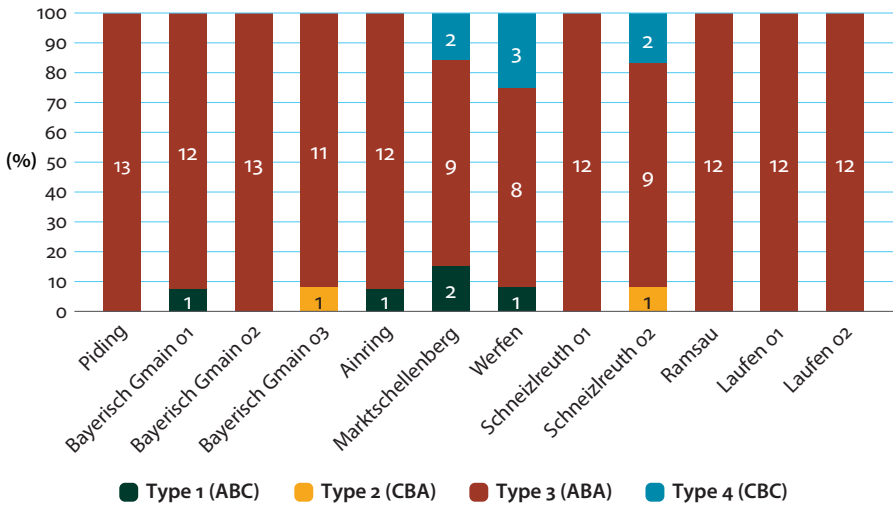
Figure 9. Use of plural types per informant in 2003/4

Table 11. Distribution of type 1, type 2, and type 4 plural verbs 2003/4

Type 1 (ABC) (*n* = 5)	Type 2 (CBA) (*n* = 2)	Type 4 (CBC) (*n* = 7)
'to sew', 'to like so./sth.' (2x), 'to come', 'to pull'	'to be', 'to be able to do sth.'	'to lie', 'to give' (2x), 'to come' (2x), 'to sew', 'to be able to do sth.'

The use of the type 3 two-form plural (ABA) predominates also clearly in the recordings of 2016/17. However, here it is only used in 82% of cases. In the 2016/17 data we find significantly more type 4 two-form plurals (CBC, 10%) and type 1 three-form plurals (ABC, 7%) than we did in the 2003/4 data. The frequency of the type 2 three-form plural remains at about 1%. Thus, the two-form plural (92%) still clearly outweighs the three-form plural (8%). However, the three-form plural shows at least a certain resilience in these data.

If one compares the recordings from 2003/4 with those from 2016/17 on the individual level, surprisingly, only one informant shows no variation over time (see Figure 10). Informant Schneizlreuth_01 consistently uses the type 3 two-form plural (ABA) in both recordings. Interestingly, the other informant from the same location, informant Schneizlreuth_02, produces three types in 2003/4 and all four types in 2016/17. Furthermore, two informants use three plural verb types and at least seven out of twelve informants apply two types of plural verb paradigms in 2016/17.

Again, we cannot see verb-specific correlations with the paradigm types (cf. Table 12).
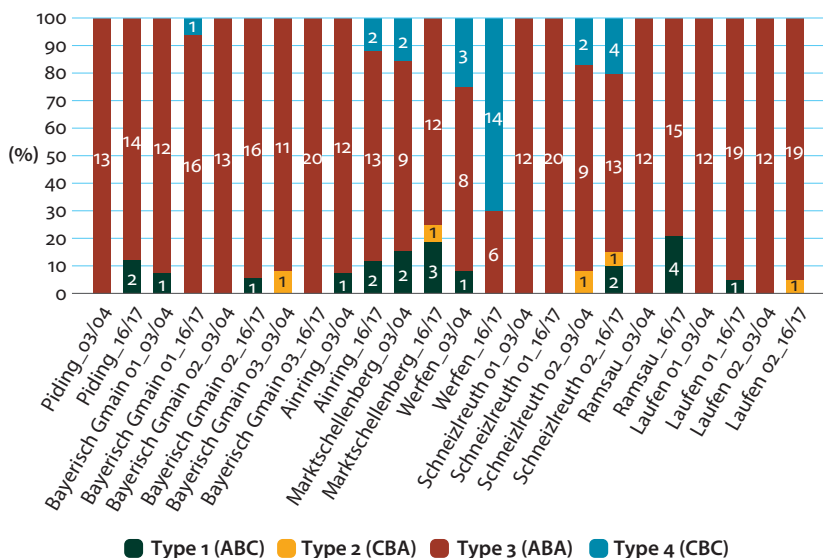
Figure 10. Use of plural types per informant in 2003/4 and 2016/17

Table 12. Distribution of type 1, type 2, and type 4 plural verbs 2016/17

Type 1 (ABC) (*n* = 15)	Type 2 (CBA) (*n* = 3)	Type 4 (CBC) (*n* = 21)
'to do', 'to see', 'to sew' (2x), 'to pull', 'to lie', 'to give' (2x), 'to play', 'to like to do so./sth.' (2x), 'to be' (2x), 'to be able to do sth.', 'to let'	'to buy', 'to pull', 'to be able to do sth.'	'to come' (2x), 'to help' (2x), 'to run' (3x), 'to learn' (2x), 'to have to do sth.', 'to play', 'to be', 'to see', 'to pull', 'to have', 'to sew', 'to lie' (2x), 'to give', 'to like so./sth.', 'to be able to do sth.'

The analyses at group level already indicate a high degree of intra-individual variation over time. We would like to illustrate this point with two examples.

The informant from Werfen varies in 2003/4 as well as in 2016/17. In 2003/4 he uses the type 3 two-form plural in eight cases. In addition, he produces the type 4 two-form plural (3x) and the type 1 three-form plural (1x). However, this picture is changing over the years. In 2016/17, the informant no longer applies the type 1 three-form plural and the ratio of the use of two-form plural paradigms has changed. In 2016/17 the informant predominantly uses the type 4 two-form plural (70%, 14x). Type 3, which is very dominant on the group level, is only used in 30% (6x) of cases by this particular informant. Therefore, the behavior of the informant from Werfen is not prototypical for the mean values on the group level. The average values of the group data do not necessarily reflect individual behavior. This observation is normally attributed to the influence of outliers when comparing

the behavior of groups. However, considering the ergodic theorem (see Section 2.1; Molenaar & Campbell 2009), the observation of IAV in language usage is not trivial, because language usage over time is a speaker-specific process:

> Whenever person-specific processes are involved, and insofar as these processes are nonergodic (i.e., obey person-specific dynamic models and/or have nonstationary statistical characteristics), their analysis should be based on intraindividual variation
> (Molenaar & Campbell 2009: 116)

and not on inter-individual comparison.

Furthermore, we cannot attribute the intra-individual variation over time to specific verbs. For example, the verb 'to take' that is formed in 2003/4 with the type 4 two-form plural is no longer produced in this fashion in 2016/17, but according to the type 3 two-form plural (cf. Table 13). The verb 'to pull' which is formed with the type 1 three-form plural in 2003/4 is used with the type 4 two-form plural in 2016/17 (cf. Table 13).

Table 13. Varied verbs by informant Werfen

	2003/4	2016/17
Type 1 (ABC)	'to pull'	
Type 4 (CBC)	'to come', 'to give', 'to take'	'to pull', 'to have', 'to come', 'to be', 'to help', 'to lie', 'to run', 'to give', 'to play', 'to have to do sth.', 'to learn', 'to sew', 'to be able to do sth.', 'to like so./sth.

The other example that we want to look at more closely is informant Schneizlreuth_02. As mentioned above, this informant uses three types in 2003/4 and four types in 2016/17. In 2003/4 she produces, of course, the type 3 and 4 two-form plurals (9x; 1x) and the type 1 three-form plural (1x). In 2016/17 she uses both types of the two-form plural (type 3, 65%, 13x; type 4, 20%, 4x) and both types of the three-form plural (type 1, 10%, 2x; type 2, 5%, 1x). Again, the percentage of the dominant type 3 plural paradigm (ABA) has not risen further over the years. Rather, the number of variants increases, although a process of advergence to the regional Bavarian vernaculars would be expected. Informant Schneizlreuth_02 better reflects in her usage of variants the average values of the group. Again, however, with regard to the verbs no constancy in variation behavior can be seen (cf. Table 14).

Table 14. Varied verbs by informant Schneizlreuth_02

	2003/4	2016/17
Type 1 (ABC)		'to be able to do sth.', 'to be'
Type 2 (CBA)	'to be'	'to buy sth.'
Type 4 (CBC)	'to come', 'to be able to do sth.'	'to come', 'to help', 'to run', 'to learn'

Although we can observe little change between 2003/4 and 2016/17 at the group level, the individual informants show a great deal of intra-individual variation. It becomes evident that development at the group level cannot simply be projected on to the development of the individual and vice versa. As pointed out in Section 2.1, for generalization of results from inter-individual variation to the results from intra-individual variation a crucial requirement is that processes must be ergodic (cf. Lowie 2017: 127; Molenaar 2009). But "ergodicity can only be assumed when the means as measured over time are constant, so that the scores are homogenous in time, and when the dynamic process shaped by the interaction of variables over time is the same for all participants, so that the process is homogenous across different subjects" (Lowie 2017: 127–128). This is definitely not the case for our datasets, as the results in Section 5.1 and 5.2 indicate. Regarding the development of plural verb paradigms in Salzburg's base dialects, the process of language change cannot be assumed to be similar or identical for all our informants. Our results illustrate that our data are neither homogeneous in time nor homogeneous across different subjects. It follows that ergodicity cannot be assumed and that we need data on intra-individual variation over time to validly generalize our observations at the group level.

Now that we have shown the variation of individuals over 13 years, we will discuss some of the above reported results in the following.

6.   Discussion

Section 5 has shown an immense degree of inter- and intra-individual variation; however, we were able to identify clear trends in the data.

To answer our first research question, the *real-time* trend survey (Section 5.1) indicates a change from the type 1 three-form plural (ABC), via an intermediate stage where the type 4 two-form plural (CBC) is favoured to the type 3 two-form plural (ABA) which is structurally similar to the regional Bavarian vernaculars and to Austrian Standard German (cf. Table 1). Note, however, that it is highly questionable whether a homogeneous type 1 three-form plural (ABC) zone ever existed in Salzburg in the 1920/30s as indicated in Wiesinger's (1989) analysis. The two datasets Wiesinger (1989) used are faced with certain methodological problems: Wenker's questionnaires contain written data which were gathered indirectly. Furthermore, the forty Wenker sentences do not contain the full plural paradigm of a single verb. In addition, Wiesinger (1989) checked his findings taken from Wenker's questionnaires against local monographs (*Ortsmonographien*) to validate his results. These local monographs, however, differ largely in their validity regarding the documented data and, furthermore, represent a structuralist approach where the authors mostly tried to reconstruct a fairly consistent system. Little attention or space was given to variation at the respective locations.

Our data show a considerable range of variants that are employed by the informants, even if there is a general trend towards the use of the type 3 two-form plural (ABA) in the 2016/17 data. This variation is not only true for the group level but also for the individual informants. What is interesting about this change, to answer research question 2, is not only the mere fact that it takes place but also the amount of both inter- and intra-individual variation that occurs in this context. The amount of inter-individual variation at specific locations might indicate that the (sub-)system of plural verb morphology is fundamentally changing. The increased intra-individual variation points towards an instability on the idiolectal level, which does not necessarily have to concern the entire idiolect of a person, though. Intra-individual variation can be very domain-specific and refers exclusively to subsystems (cf. Lowie 2017; de Bot 2015). It would be very interesting to investigate how much variation the informants show in other subsystems in order to determine how conservative or progressive their base dialectal knowledge is in general. With regard to the use of the type 1 three-form plural (ABC), the South Bavarian dialect region (Lungau) seems to be the most stable area even if the 2016/17 data also indicate an ongoing change in this region (see Section 5.1).

Moreover, to answer research question 3, our results indicate that the older informants show more intra-individual variation than the younger informants (see Section 5.1). Furthermore, it can be argued that the NORMs and NORFs vary more than the 'professionals' within the same age group (see Section 5.2). This finding illustrates that intra-individual variation can provide a meaningful source of information. CDST-related studies show "the amount of variability can be associated with the likeliness of change" (Lowie 2017: 131). Therefore, the language behavior of our younger informants as well as the 'professionals' indicates that the plural verb morphology seems to have moved in a new and more stable attractor state which is supported by the regional Bavarian vernaculars (vertical advergence) and the surrounding base dialects which already have the type 3 two-form plural (horizontal convergence). Both groups of informants have regular contact with the standard varieties in Germany and Austria and the regional Bavarian vernaculars. This factor might explain why the type 3 two-form plural (ABA) is favored over the type 4 two-form plural and the three-form plurals within these groups.[19] Conversely, increased intra-individual variability might be an indicator of relative instability. Variability is a necessary prerequisite for development; "a high degree of intra-individual variability implies that developmental changes may be taking place" (Lowie 2017: 131).

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19. Another factor that may explain the increase of the type 3 two-form plural (ABA) is of phonological nature. Rabanus (2005: 283–284) explains the /t/-deletion in plural verbs, which leads to -EN morphemes, with Vennemann's 'Coda Law'; this is an universal process which serves to optimize the syllable structure.

Due to statistical reasons it is not easy to answer research question 4. We could only carry out meaningful statistics for the 1970/80s data. Even though a mixed model revealed that in comparison to the other verbs in this dataset the verbs 'to be' and 'to loose' are distributed differently to a significant extent over the four paradigm types; this result is difficult to interpret. The complete plural verb paradigm of 'to loose' was, for example, only elicited at seven locations. In contrast, 'to be' was gathered at all 57 locations. The informants strongly favoured the type 4 two-form plural (CBC) to form 'to be' (*hand* 'we/they are'). Interestingly, we can also find this type of 'to be' in the German standard languages[20] (*sind* 1/3PL 'we/they are'). The form *sind* (1/3PL 'we/they are') is historically equivalent with MHG morphological structure of 3PL -NT. However, the informants of the 2016/17 dataset favour the type 3 two-form plural (ABA) to form 'to be'. Note that regarding 'to be', we also can find in our 2016/17 recordings a lot of intra-individual variation in the anlaut (*mia han(d)* vs. *mia san(d)* 'we are') and the vowel (*es h/sadds* vs. es *h/saidds* 'you are') (cf. Bülow & Wallner to appear). Furthermore, it is striking that also the preterite-present verbs show all plural verb paradigms. This verb class could not be identified as a role model in our data.

In sum, our findings illustrate a considerable amout of inter- and intra-individual variation in all our datasets. Therefore, one of this paper's main arguments is to work out a crucial desideratum to adequatly capture developmental change: the need of more longitudinal case studies generating dense data. As argued in Section 2.1, we not only need *real-time* trend surveys based on group data but also *real-time* panel studies focusing on the individual language variability and development. The following two questions might pop up immediately: How dense should dense data be and how can we generalize the observations of individual language behavior to populations? The first question is not easy to answer as there is only little expertise in the field of dialectology so far. In particular, we are short of pilot studies. What we can learn from CDST-inspired studies on language development is that we need at least thirty data points to run meaningful non-linear statistics (cf. Lowie 2017: 136). Regarding the density of data points, no hard rules can be given as we urgently need these kinds of dense pilot studies in dialectology.[21] To elaborate on the second question: First, we have to note "that the quality of research is not solely dependent on its abilty to generalize the findings to larger populations, as this position would overvalue the relevance of generalization" (Lowie 2017: 137).

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20. We assume that Austrian Standard German is not a homogeneous entity. Many results point to differences in vocabulary, grammar and pronunciation (see e.g. the project *Regional Variation in the Grammar of Standard German*).

21. All we can advise so far is that "longitudinal [...] data should be dense enough and extensive enough to capture the process in a representative way" (Lowie 2017: 138).

Second, group studies as well as individual case studies have limited potential. As we demonstrated in Section 5.2, generalized observations based on the group level do not allow insights into the behavior of individuals in that group. This implies that there is no guarantee that the average is representative for any of the individuals of that group. From the non-ergodicity of the data follows on the one hand that outcomes of the case studies cannot be generalized and on the other hand that group means can not be individualized (see Section 2.1). Third, generalizability should not be equated with causality.

> Even though observations in case studies can never be generalized to idealized groups of individuals, causal relations can certainly be disclosed in individual trajectories of single case studies and can have direct bearing on underlying theory.
> (Lowie 2017: 137)

Or as van Geert (2011: 276) puts it, "a truly general theory of development processes is one that can be 'individualized' – it can generate theory-based descriptions of individual trajectories in a nontrivial sense". Van Geert (2011: 276) argues that case studies can have a generalizing power, depending on how they are linked to a particular theory. A good theory should be able to describe and explain individual developmental patterns (cf. Larsen-Freeman 2017: 35). Therefore, to generalize we need replications of multiple individual case studies, "as each case study can be seen as a replication study to falsify or corroborate the causal relations discerned in other studies" (Lowie 2017: 137). Though, replications of case studies are required to reliably identify the main factors, on the one hand, and to create consistent models and theories, in our case theories on language development and language change, on the other.

7.   Conclusion

Over the past hundred years the plural verb morphology in Salzburg's base dialects has markedly changed and is continuously changing, by all appearances. It is accompanied by a high degree of inter- and intra-individual variation. In the South Central Bavarian transition zone the plural verb morphology changed from the type 1 three-form plural (ABC) via the type 4 two-form plural (CBC) to the type 3 two-form plural (ABA). This applies also to Central Bavarian dialects in Salzburg. Only the South Bavarian informants seem to maintain the type 1 three-form plural (ABC). Only where the South Bavarian characteristics predominate is the three-form plural robustly represented. However, also in the South Bavarian dialect region the younger informants tend to use the type 3 two-form plural (ABA). This type of plural paradigm is structurally similar to the regional Bavarian vernaculars

and Austrian Standard German. Therefore, we found convergence on the vertical (advergence) and the horizontal level.

However, this observation should not deceive us about the high degree of intra-individual variation that we have found in the data. The vast majority of our informants do vary. Surprisingly, the different verb classes seem to have no influence. It is not possible to identify specific verbs as the vehicles of innovation. Our data indicate instead several external linguistic factors such as age, region, profession and mobility. These factors are interesting with regard to the degree of intra-individual variation. Our findings underline that intra-individual variation provides a meaningful source of information. The degree of variability can be associated with the likeliness of development and change. Therefore, it is important to know which informants show variation (to what extent and in which respect) and which informants do not. Furthermore, it is important to know whether this variation is stable over time or not. In summary, the description of variation we suggest here seems to be realistic and does not attempt to impose a doubtful homogeneity on both the morphological system of a language and the idiolect of a person at any stage of their development.

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References

Anderwald, Lieselotte. 2009. *The Morphology of English Dialects. Verb-formation in Non-standard English. Cambridge*: CUP.

Beckner, Clay, Blyth, Richard, Bybee, Joan, Christiansen, Morten H., Croft, William, Ellis, Nick, Holland, John, Ke, Jinyun, Larsen-Freeman, Diane & Schoenemann, Tom. 2009. Language is a complex adaptive system: Position paper. *Language Learning* 59(1): 1–26.

Birkmann, Thomas. 1987. *Präteritopräsentia. Morphologische Entwicklungen einer Sonderklasse in den altgermanischen Sprachen*. Tübingen: Niemeyer.

Boyd, Sally & Fraurud, Kari. 2010. Challenging the homogeneity assumption in language variation analysis: Findings from a study of multilingual urban spaces. In *Language and Space. An International Handbook on Linguistic Variation*, Vol. 1: *Theories and Methods*, Peter Auer & Jürgen Erich Schmidt (eds), 686–706. Berlin: De Gruyter.

Budin, Gerhard, Elspaß, Stephan, Lenz, Alexandra N., Newerkla, Stefan M. & Ziegler, Arne. To appear. The Research Project (SFB) 'German in Austria'. Variation – Contact – Perception. In *Dimensionen des sprachlichen Raums: Variation – Mehrsprachigkeit – Konzeptualisierung*, Lars Bülow, Kristina Herbert & Ann-Kathrin Fischer (eds). Wien: Peter Lang.

Bülow, Lars. 2017. *Sprachdynamik im Lichte der Evolutionstheorie. Für ein integratives Sprachwandelmodell*. Stuttgart: Franz Steiner.

Bülow, Lars, de Bot, Kees & Hilton, Nanna. 2017. Zum Nutzen der Complex Dynamic Systems Theory (CDST) für die Erforschung von Sprachvariation und Sprachwandel. In *Räume, Grenzen, Übergänge. Akten des 5. Kongresses der Internationalen Gesellschaft für Dialektologie des Deutschen (IGDD)*, Helen Christen, Peter Gilles & Christoph Purschke (eds), 45–69. Stuttgart: Franz Steiner.

Bülow, Lars & Wallner, Dominik. To appear. Inter- and intra-individual variation in Bavarian base dialects. The case of the verb sein. In *Variationist Linguistics Meets Contact Linguistics*, Alexandra Lenz & Mateusz Maselko (eds). Göttingen: Vienna University Press.

Bybee, Joan L. 1985. *Morphology. A Study on the Relation between Meaning and Form* [Typological Studies in Language 9]. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.9

Carroll, Ryan, Svare, Ragnar & Salmons, Joseph. 2012. Quantifying the evolutionary dynamics of German verbs. *Journal of Historical Linguistics* 2: 153–172. https://doi.org/10.1075/jhl.2.2.01car

Chambers, Jack K. 1995. *Sociolinguistic Theory. Linguistic Variation and its Social Significance*. Oxford: Blackwell.

Chambers, Jack K. & Trudgill, Peter. 2009. *Dialectology*. Cambridge: CUP.

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge MA: The MIT Press.

Coupland, Nikolas. 1984. Accommodation at work: Some phonological data and their implications. *International Journal of the Sociology of Language* 46: 49–70.

Cukor-Avila, Patricia & Bailey, Guy. 2013. Real time and apparent time. In *The Handbook of Language Variation and Change*, Jack K. Chambers & Natalie Schilling (eds), 237–262. Malden MA: Wiley-Blackwell. https://doi.org/10.1002/9781118335598.ch11

Dammel, Antje. 2011. *Konjugationsklassenwandel. Prinzipien des Ab-, Um- und Ausbaus verbalflexivischer Allomorphie in germanischen Sprachen*. Berlin: De Gruyter.

de Bot, Kees. 2015. *A History of Applied Linguistics. From 1980 to the Present*. London: Routledge.

de Bot, Kees, Lowie, Wander & Verspoor, Marjolijn. 2007. A Dynamic Systems Theory approach to second language acquisition. *Bilingualism: Language and Cognition* 10: 7–21. https://doi.org/10.1017/S1366728906002732

DiÖ 2018 = *Deutsch in Österreich*. <https://dioe.at/> (25 April 2018).

Ellis, Nick C. 2011. The emergence of language as a complex adaptive system. In *The Routledge Handbook of Applied Linguistics*, James Simpson (ed.), 654–667. London: Routledge.

Fleischer, Jürg. 2017. *Geschichte, Anlage und Durchführung der Fragebogen-Erhebungen von Georg Wenkers 40 Sätzen. Dokumentation, Entdeckungen und Neubewertungen* [Deutsche Dialektgeographie 123]. Hildesheim: Olms.

Harrington, Jonathan, Palethorpe, Sallyanne & Watson, Catherine I. 2000. Does the Queen speak the Queen's English? *Nature* 408: 927–928. https://doi.org/10.1038/35050160

Kim, Agnes. 2019. Multilingual Lower Austria. Historical sociolinguistic investigations on Wenker's questionnaires. In *Dimensionen des sprachlichen Raums: Variation – Mehrsprachigkeit – Konzeptualisierung*, Lars Bülow, Kristina Herbert & Ann-Kathrin Fischer (eds), 187–211. Wien: Peter Lang.

Koch, Günter. 2007. *Sprachatlas von Niederbayern,* Band 5: *Verbum*. Heidelberg: Winter.

Labov, William. 1966. *The Social Stratification of English in New York City*. Washington DC: Center for Applied Linguistics.

Larsen-Freeman, Diane. 2017. Complexity Theory. The lessons continue. In *Complexity Theory and Language Development: In Celebration of Diane Larsen-Freeman* [Language Learning & Language Teaching 48], Lourdes Ortega & ZhaoHong Han (eds), 11–50. Amsterdam: John Benjamins. https://doi.org/10.1075/lllt.48.02lar

Lessiak, Primus. 1963. *Die Mundarten von Pernegg in Kärnten*. Marburg: N.G. Elwert.

Lieberman, Erez, Michel, Jean-Baptiste, Jackson, Joe, Tang, Tina & Nowak, Martin A. 2007. Quantifying the evolutionary dynamics of language. *Nature* 449: 713–716. https://doi.org/10.1038/nature06137

Lord, Frederic M. & Novick, Melvin R. 1968. *Statistical Theories of Mental Test Scores*. Reading MA: Addison-Wesley.

Lowie, Wander. 2017. Lost in state space? Methodological considerations in Complex Dynamic Theory approaches to second language development research. In *Complexity Theory and Language Development: In Celebration of Diane Larsen-Freeman* [Language Learning & Language Teaching 48], Lourdes Ortega & ZhaoHong Han (eds), 123–141. Amsterdam: John Benjamins. https://doi.org/10.1075/lllt.48.07low

Mauser, Peter. 1998. *Die Morphologie im Dialekt des Salzburger Lungaus*. Wien: Peter Lang.

Mauser, Peter. 2007. Dialektale Wortformen und Formsysteme. In *Drent und herent. Dialekte im salzburgisch-bayerischen Grenzgebiet*, Hannes Scheutz (ed.), 57–78. Salzburg: EuRegio.

Milroy, Lesley. 1987. *Language and Social Networks*. 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. Interdisciplinary Research and Perspectives* 2: 201–218. https://doi.org/10.1207/s15366359mea0204_1

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. https://doi.org/10.1002/dev.20262

Molenaar, Peter C. M. 2009. Can psychology be a quantitative science, or is Kant right after all? Normative issues in psychometrics. In *Norms in Human Development*, Leslie Smith & Jacques Vonèche (eds), 211–219. Cambridge: CUP.

Molenaar, Peter C. M. & Campbell, Cynthia G. 2009. The new person-specific paradigm in psychology. *Current Trends in Psychology* 18: 112–117. https://doi.org/10.1111/j.1467-8721.2009.01619.x

Nübling, Damaris & Dammel, Antje. 2004. Relevanzgesteuerter morphologischer Umbau im Frühneuhochdeutschen. *Beiträge zur Geschichte der deutschen Sprache und Literatur* (PBB) 126(2): 177–207. https://doi.org/10.1515/BGSL.2004.177

Paul, Hermann et al. 2007. *Mittelhochdeutsche Grammatik*. Überarbeitet von Thomas Klein, Hans-Joachim Solms und Klaus-Peter Wegera. Mit einer Syntax von Ingeborg Schöbler. Tübingen: Niemeyer.

Penris, Wouters & Verspoor, Marjolijn. 2017. Academic writing development: A complex, dynamic process. In *Applied Linguistics and the Future: A Medley of Perspectives*. Simone Pfenninger & Judit Navracsics (eds), 215–242. Clevedon: Multilingual Matters.

Rabanus, Stefan. 2004. Morphological change in German dialects. Two cases of plural verbs in Alemannic. In *Language Variation in Europe. Papers from the Second International Conference on Language Variation in Europe, ICLaVE 2*, Britt-Louise Gunnarsson, Lena Bergström & Gerd Eklund (eds), 339–352. Uppsala: Uppsala University Press.

Rabanus, Stefan. 2005. Dialektwandel im 20. Jahrhundert: Verbalplural in Südwestdeutschland. In *Moderne Dialekte – Neue Dialektologie. Akten des 1. Kongresses der internationalen Gesellschaft für Dialektologie des Deutschen (IGDD)*, Eckhard Eggers, Jürgen Erich Schmidt & Dieter Stellmacher (eds), 267–290. Stuttgart: Franz Steiner.

Rabanus, Stefan. 2008. *Morphologisches Minimum. Distinktionen und Synkretisman im Minimalsatz hochdeutscher Dialekte*. Stuttgart: Franz Steiner.

Rabanus, Stefan. 2010. Areal variation in morphology. In *Language and Space. An International Handbook on Linguistic Variation*, Vol. 1: *Theories and Methods*, Peter Auer & Jürgen Erich Schmidt (eds), 804–821. Berlin: De Gruyter.

Rampton, Ben. 1997. Second language research in late modernity: A response to Firth and Wagner. *The Modern Language Journal* 81(3): 329–333.
https://doi.org/10.1111/j.1540-4781.1997.tb05491.x

Ritt, Nikolaus. 2004. *Selfish Sounds and Linguistic Evolution. A Darwinian Approach to Language Change*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511486449

SAND = *A Syntactic Atlas of the Dutch Dialects*. <http://www.meertens.knaw.nl/projecten/sand/sandeng.html> (25 April 2018).

SAO = *Sprachatlas von Oberösterreich*. <https://stifterhaus.at/index.php?id=99> (16 August 2018).

Schallert, Oliver. 2013. Syntaktische Auswertung von Wenkersätzen: Eine Fallstudie anhand von Verbstellungsphänomenen in den bairischen (und alemannischen) Dialekten Österreichs. In *Strömungen in der Entwicklung der Dialekte und ihrer Erforschung. Beiträge zur 11. Bayerisch-Österreichischen Dialektologentagung in Passau, September 2010*, Rüdiger Harnisch (ed.), 208–233. Regensburg: Edition Vulpes.

Scheutz, Hannes. 2007. *Drent und herent. Dialekte im salzburgisch-bayerischen Grenzgebiet*. Salzburg: EuRegio.

Scheutz, Hannes. 2016. *Insre Sprochh. Deutsche Dialekte in Südtirol*. Bozen: Athesia.

Scheutz, Hannes. 2017. *Sprachatlas von Salzburg*. <https://www.sprachatlas.at/salzburg/> (25 April 2018).

Schirmunski, Viktor M. 1962 [2010]. *Deutsche Mundartkunde. Vergleichende Laut- und Formenlehre der deutschen Mundarten*. Berlin: Akademie Verlag.

Schmidt, Jürgen Erich & Herrgen, Joachim. 2011. *Sprachdynamik. Eine Einführung in die moderne Regionalsprachenforschung*. Berlin: Erich Schmidt.

Schuchardt, Hugo. 1972 [1885]. On sound laws: Against the neogrammarians. In *Schuchardt, the Neogrammarians, and the Transformational Theory of Phonological Change*. Theo Vennemann & Terence H. Wilbur (eds), 39–72. Frankfurt: Athenäum.

SNiB = *Sprachatlas von Niederbayern*. <http://www.phil.uni-passau.de/deutsche-sprachwissenschaft/forschung/sprachraumforschung/snib/> (25 April 2018).

SyHD = *Syntax of Hessian Dialects* <http://www.syhd.info/en/home/> (25 April 2018).

Siegler, Robert S. & Crowley, Kevin. 1991. The microgenetic method. A direct means for studying cognitive development. *American Psychologist* 46(6): 606–620.
https://doi.org/10.1037/0003-066X.46.6.606

van Geert, Paul. 2011. The contribution of complex dynamic systems to development. *Child Development Perspectives* 5(4): 273–278. https://doi.org/10.1111/j.1750-8606.2011.00197.x

Vergeiner, Philip. 2019. *Kookkurrenz – Kovariation – Kontrast. Formen und Funktionen individueller Dialekt-/Standardvariation in Beratungsgesprächen an der Universität Salzburg*. Wien: Peter Lang.

Verspoor, Marjolijn. 2017. Complex Dynamic Systems Theory and L2 pedagogy. In *Complexity Theory and Language Development: In Celebration of Diane Larsen-Freeman* [Language Learning & Language Teaching 48], Lourdes Ortega & ZhaoHong Han (eds), 143–162. Amsterdam: John Benjamins. https://doi.org/10.1075/lllt.48.08ver

Werner, Ottmar. 1987. Natürlichkeit und Nutzen morphologischer Irregularität. In *Beiträge zum 3. Essener Kolloquium über Sprachwandel und seine bestimmenden Faktoren*, Norbert Boretzky, Werner Enninger & Thomas Stolz (eds), 289–316. Bochum: Brockmeyer.

Wiesinger, Peter. 1983. Die Einteilung der deutschen Dialekte. In *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung. Zweiter Halbband* [Handbücher zur Sprach- und Kommunikationswissenschaft 1.2], Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert E. Wiegand (eds), 807–900. Berlin: De Gruyter. https://doi.org/10.1515/9783110203332.807

Wiesinger, Peter. 1989. *Die Flexionsmorphologie des Verbums im Bairischen*. Wien: Österreichische Akademie der Wissenschaften.

Wolfram, Walt. 2007. Sociolinguistic myths in the study of African American English. *Language and Linguistics Compass* 1(4): 292–313. https://doi.org/10.1111/j.1749-818X.2007.00016.x

Wolfram, Walt & Thomas, Erik. 2002. *The Development of Afro-American English*. Malden MA: Blackwell.

Wurzel, Wolfgang. 1984. *Flexionsmorphologie und Natürlichkeit*. Berlin: Akademie Verlag.

Appendix

Table 15. Locations of the 1970/80s survey

No.	Location	Year	No. Informants	Dialect Region CB = Central Bavarian SCB = South-Central Bavarian SB = South Bavarian
1	Abtenau	n.y.	8	SCB
2	Altenmarkt	n.y.	6	SCB
3	Anthering	1984	7	CB
4	Bischofshofen	1987	6	SCB
5	Bramberg	1970	5	SCB
6	Bruck	1971	9	SCB
7	Dienten	n.y.	7	SCB
8	Dorfbeuern	1985	7	CB
9	Elsbethen	1984	2	SCB
10	Faistenau	1985	6	SCB
11	Filzmoos	n.y.	5	SCB
12	Forstau	1982	3	SCB
13	Fusch	1972	7	SCB
14	Fuschl	n.y.	9	CB
15	Golling	n.y.	5	SCB
16	Großarl	n.y.	6	SCB
17	Großgmain	1984	3	SCB

Table 15. (*continued*)

No.	Location	Year	No. Informants	Dialect Region CB = Central Bavarian SCB = South-Central Bavarian SB = South Bavarian
18	Hallein	1985	10	SCB
19	Hofgastein	1986	5	SCB
20	Hollersbach	1970	4	SCB
21	Kendlbruck	1981	6	SB
22	Leogang	1972	8	SCB
23	Lessach	1978	6	SB
24	Maria Alm	1972	4	SCB
25	Mariapfarr	1977	6	SB
26	Mattsee	n.y.	7	CB
27	Mühlbach/Hochkönig	1986	6	SCB
28	Muhr	n.y.	7	SB
29	Niedernsill	1971	5	SCB
30	Piesendorf	n.y.	5	SCB
31	Radstadt	1987	5	SCB
32	Rauris	1972	4	SCB
33	Salzburg	1987	4	SCB
34	Sauerfeld	n.y.	7	SB
35	Seekirchen	1984	8	CB
36	St. Georgen	1985	6	CB
37	St. Koloman	1985	6	SCB
38	St. Martin/Tennengebirge	n.y.	11	SCB
39	St. Martin bei Lofer	1973	9	SCB
40	St. Michael	1981	7	SB
41	St. Veit	1968	4	SCB
42	Straßwalchen	n.y.	5	CB
43	Strobl	1972	5	CB
44	Stuhlfelden	1970	8	SCB
45	Tamsweg	1987	4	SB
46	Taxenbach	1969	8	SCB
47	Thalgau	1984	3	CB
48	Unken	1987	8	SCB
49	Unternberg	1976	6	SB
50	Uttendorf	1971	7	SCB
51	Viehhofen	1972	6	SCB
52	Wagrain	1986	6	SCB
53	Wald im Pinzgau	1970	4	SCB
54	Wals/Siezenheim	1984	7	SCB
55	Werfen	1986	7	SCB
56	Zederhaus	1969	5	SB
57	Zell am See	n.y.	4	SCB

Table 16. Locations of the 2016/17s survey

No.	Location	Year	No. Informants (young/old)	Dialect Region CB = Central Bavarian SCB = South-Central Bavarian SB = South Bavarian
1	Abtenau	2016	1/1	SCB
2	Anthering	2016	1/1	CB
3	Dorfbeuern	2016	1/1	CB
4	Dürrnberg/Hallein	2016	1/1	SCB
5	Elsbethen	2016	1/1	SCB
6	Faistenau	2016	1/1	SCB
7	Forstau	2016	1/1	SCB
8	Fusch	2016/17	1/1	SCB
9	Fuschl	2016	1/1	CB
10	Hüttschlag	2016/17	1/1	SB
11	Lasaberg/Tamsweg	2016	1/1	SB
12	Maishofen	2016/17	1/1	SCB
13	Maria Alm	2016/17	1/1	SCB
14	Mariapfarr	2016	1/1	SB
15	Mühlbach	2016/17	1/1	SCB
16	Muhr	2016	1/1	SB
17	Petting	2016	1/1	CB
18	Rauris	2016	1/1	SCB
19	Russbach	2016	1/1	SCB
20	Schönau/Königsee	2016	1/1	SCB
21	Seekirchen	2016	1/1	CB
22	St. Georgen	2016	1/1	CB
23	St. Koloman	2016	1/1	SCB
24	St. Martin bei Lofer	2016	1/1	SCB
25	Strobl	2016	1/1	CB
26	Stuhlfelden	2016/17	1/1	SCB
27	Surheim	2016	1/1	CB
28	Taxenbach	2016/17	1/1	SCB
29	Teisendorf	2016	1/1	CB
30	Unken	2016/17	1/1	SCB
31	Wald	2016/17	1/1	SCB
32	Zederhaus	2016	1/1	SB

Content, form and realizations
of Upper German case marking
Issues in modelling corpus-based data

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This article discusses the application of the Paradigm Function Morphology (PFM) approach when modelling data from Upper German case marking. Building on a corpus-based study, it highlights the relevant aspects – the word forms, case marking types and patterns – which shape the Upper German case marking system. In a second step, it discusses pressing issues in modelling these aspects in PFM, focusing on the issue of modelling the case marking types. In the Upper German data, these types show gradual behavior in non-concatenative structures, which cannot be adequately accounted for using the PFM approach. In addition, the article highlights the issues in modelling case marking patterns based on the phonological surface structure – a level which involves a great amount of variation.

1. Case marking in German dialects: A challenge for formal theories

The German case system provides an interesting testing ground for formal approaches to inflectional morphology: German, by its very nature, uses a variety of case forms that show various types of case marking patterns.

In the German system, nominal and concordial case marking leads to these diverse types. Concordial case marking is defined as the pattern of using articles and adjectives to express case, which agrees with categories of nominal case marking, such as nouns and pronouns (see e.g. Blake 2001: 7). While pronouns can still be considered case forms in German inflectional systems, nouns increasingly lose their function as case markers, especially in German dialect systems (Shrier 1965: 421); therefore, nouns are not taken into account here.

Those word forms which play a role in the German inflectional system can be divided into two main types of case marking, defined by the morphological means they exhibit to express case. While case marking on adjectives, for example,

is based on inflectional morphemes, case marking on pronouns and articles is characterized by non-concatenative exponents. Both basic types of case marking show a variety of different patterns of either syncretic or distinct case forms based on gender, number and word class distinction.[1] These patterns of case marking are even more diverse when viewing German dialect case systems instead of the Standard German system, and they additionally show geographic differences. As an example, distinct synthetic genitive marking is restricted to isolated dialects, and the remaining distinct synthetic cases – nominative, accusative and dative – show greater tendencies towards syncretism (see e.g. Shrier 1965).

As the case marking systems of German dialects have only just started to be investigated over the past few years,[2] there is a lack of exhaustive descriptions of complete dialectal case systems including all types of case forms. This is the larger purpose of my empirical analysis. In it, I aim to develop a comprehensive description of the dialectal case systems that is as empirically accurate as possible but also formally abstract enough to reveal fundamental structures and basic tendencies within the system.

Therefore, this article can be seen as a workshop report on a first attempt of modelling quantitative data on German dialect case marking using a formal approach. As a result, I outline some issues that arise when trying to model the different types of case forms and case marking in addition to the diverse patterns of syncretism and distinctions in a formal framework. These issues arise not only because of the special features of German dialect systems, but also due to the type of database and the research design I chose for the analysis. I analyzed a corpus based on dialectal spoken-language data. Thus, this article also addresses issues in modelling this corpus-based data via a formal approach.

The illustrative framework chosen for this article is the Paradigm Function Morphology (PFM) approach which is based on Stump (2001) and partly refined in Stump (2016). PFM itself is based on solid empirical foundation and is thus

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1.   Two basic concepts are distinguished in the analysis: The concept of *case marking types* refers to the morphological structure which expresses the feature of case marking whereas the concept of *case marking patterns* refers to the binary classification of distinction or syncretism within the system – regardless of the morphological form.

2.   There are, of course, interesting descriptions of distinct parts of dialectal case systems which can be used as a starting point for further analyses: After Shrier (1965) published her seminal article on case marking in German dialects, some later work has started to expand on her basic findings. Seiler (2003) and Rabanus (2008), for instance, focus on sections of the Upper German and High German case systems, Alber and Rabanus (2011) and Dal Negro (2004) deal with the interaction of case and animacy, and Rauth (2016) investigates the interaction of case and word order.

equipped to handle complex and variable data. Further, it is considered an approach which can manage various complex patterns in diverse inflectional systems, as those seen in the Upper German data. In addition, PFM focuses on the paradigm itself: Since the paradigm – or at least case marking as a basic segment of the inflectional paradigm – also forms the main objective of my analysis, PFM represents an appropriate formal modelling approach for my data. Nevertheless, PFM is also known for its highly equipped formalism (see e.g. Vajda 2003). This might introduce some transparency problems when modelling irregular forms and paradigmatic variation, since those represent exceptional causes to the framework and may expand and complicate the already excessive formal description.

Despite the potential problems, including both theoretical reflection (a formal approach) and empirical data adds certain benefits to the description. Using quantitative data such as data on the frequency of case forms allows us to rate certain structures as relevant or less relevant for the (formal) description of a case system. Conversely, the fixed framework of a formal approach can reveal those points in the definition of the basic features and the design of the empirical analysis which both need further specification.

In order to give an overview of the data and the formal approach, the article is structured as follows: Section 2 introduces the corpus and the method of analysis and discusses the benefits of a quantitative analysis of Upper German case marking. It then gives an overview of the basic findings of the empirical data and especially concentrates on the types of case marking which need to be modeled in the description. Section 3 focuses on the PFM approach and how it handles the special features of Upper German case systems. Then, in Section 4, there is a discussion of the limitations of both theoretical modelling and the use of empirical data and an initial conclusion on the combination of both of these analytical steps.

2.   Corpus-based study on Upper German dialects

2.1   A corpus of spoken dialectal language

The present analysis is meant as a snap-shot of a project which focuses on closely related case marking systems. The geographical area of interest results from a corpus of Upper German data (Ruoff 1984). The corpus is based on 72 transcripts of spoken dialectal language commonly representing a dialect area that stretches over parts of Baden-Württemberg and some fractions of Bavarian Swabia. Therefore, from a dialectological point of view, the corpus contains data from Alemannic, Swabian, and East Franconian dialects.
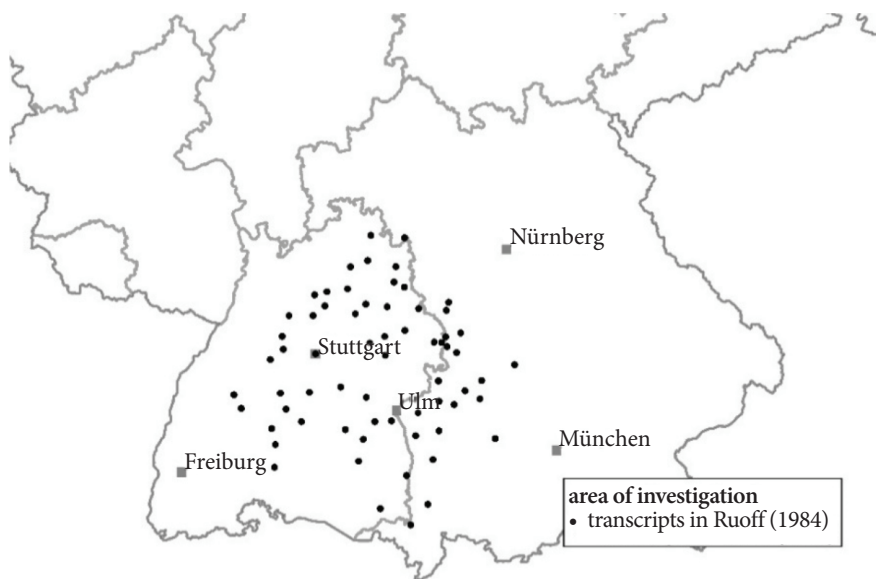
Figure 1. Geographical overview over of the corpus

Each transcript in the corpus is based on an audio recording of a single speaker representing a single location. Each speaker's case marking system is reconstructed based on the respective transcript. Thus, the systems can be analyzed on the level of individual speakers.

The transcripts are based on 'literary' transcription (see Ruoff 1973), which captures the level of phonological variation along with morphological phenomena. Thus, the analysis of the transcripts captures the phonological surface structure rather than the presumed underlying morphological structures, which would be captured in an analysis of dialect grammars. The analysis therefore follows Bonami et al. (2011), who opt for using transcriptions as close as possible to the phonological surface. Naturally, this type of data involves many phonological alternations. Some of these alternations may be irrelevant for morphological abstractions, but others may prove to be the key to relevant morphological phenomena.

2.2   A quantitative analysis of case marking

The quantitative design of the data analysis allows us to answer basic questions about the relevant categories and features of the case marking system within the Upper German area under investigation. Namely, the basic categories of the case marking systems are those word forms that serve as case markers. In this analysis, the word forms' relevance for the case marking system is quantified by their

frequency in spoken language as well as their case marking features. The relevance of frequency is based on the assumption that patterns found on frequent word forms are more relevant to the description than less frequent ones. The features of a case marking word form are based on its patterns of case distinction. Thereby, a quantitative analysis allows us to measure the number of distinctive and syncretic tokens of each word form. This permits us to graduate distinctions in gender, person, and number, through inter- and partly intra-systematic variation.

Based on a quantitative analysis, the diverse types of word forms can be arranged in a hierarchy of relevance for the description of a case marking system.[3] As an example, 1st person singular personal pronouns exhibit a formal distinction of nominative, accusative and dative (*ich/mich/mir*) in Standard German and show high frequency in spoken language[4] while reflexive pronouns only mark accusative or dative (using a single syncretic form) and show low frequency in spoken language. Thus, 1st person singular personal pronouns would be seen as more relevant to the description of a case marking system than reflexive pronouns. The quantitative data on both frequency and syncretism or distinction gathered in the analysis quantifies and thus refines this hierarchy.

That way, along with being able to identify the word forms that are relevant for the formal modelling, one can determine the basic types of case marking by carving out the morphological structures of relevant case marking word forms. These types form a crucial basis for the processes of modelling in the formal approach.

In order to build the empirical foundation to approach these basic questions, I rely on a corpus-based analysis in which assumptions are made based on realized word forms. In this respect, assumptions fundamentally originate from realized word forms on the phonological surface in the corpus. Each word form that is initially assumed to mark case – e.g. definite and indefinite articles, demonstrative pronouns, personal pronouns, possessive pronouns, reflexive pronouns, adjectives – is extracted and entered into a database and analyzed according to its morphological, semantic and syntactic properties as well as its context.[5] Additionally, each word form is analyzed by the case it canonically marks. For this purpose, the case which is expressed by the word form is defined as the case that is governed by the verb or

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3.   This definition of 'relevance' must not be mistaken with definitions in other morphological works as e.g. Bybee (1985: 13–16).

4.   This estimate on the frequency of word classes in spoken language is based on Ruoff (1990: 514–516) which again is based on transcripts of Upper German data that also include the corpus used in my analysis.

5.   This article focusses on the structure of case marking itself. For additional remarks on the method of quantifying case marking and an overview of the first results on the interaction of case marking and other factors, see Ellsäßer (2017).

preposition. Thus, the word form is defined by its function in the morphosyntactic system, while its actual form will temporarily be ignored.

To create a standardized benchmark for analyzing case despite the strong tendency towards syncretism in the German system, a method based on Canonical Typology (Brown & Chumakina 2014) was used to assign case in the analysis: The case marking patterns found in the idiolectal systems are described in their distance to an ideal paradigmatic system (Ellsäßer 2017: 73). Those patterns sharing more features with this ideal paradigmatic system are seen as more canonical compared to those patterns sharing less features with it. Based on Corbett's (2007: 9) definition of a canonical inflectional paradigm, this ideal paradigmatic system contains all possible paradigmatic cells. Thus, it shows full distinction of nominative, accusative and dative in each context.

Some issues arise when attempting to clearly assign the marking pattern – of either a distinct or a syncretic form – for each word form in the spoken language data. Those issues occur because the data lack paradigmatic presentation, which we normally use to evaluate (based, for example, on grammars) whether a form is distinct or syncretic. The first issue is that because the corpus is limited, there is no guarantee that there will be evidence for a full paradigm in each word class and each context. This leads to a certain amount of word forms which cannot be assigned to a case marking pattern and therefore need to be excluded from the analysis. Second, because the analysis is based on non-standardized word forms which may strongly vary from one speaker's system to another's, case marking patterns are only assigned within one single transcript (Ellsäßer 2017: 74). Thus, it is not the actual shape of the word forms but this assignment of case marking patterns which serves as a basis of comparison for different idiolectal systems.

And third, the analysis leads to a special definition of syncretism: for one thing, syncretism can only be defined as a synchronic feature of two forms that bear different canonical cases and that do not show a formal distinction. Thus, the definition of syncretism in my analysis follows Baerman et al. (2005: 7). To evaluate whether syncretism is caused by a process in phonology or morphology or whether it is a phenomenon of random homophony is a challenging task for the present analysis. Additionally, since syncretism is only assigned based on the feature of case marking regarding only formal distinctions within a single word class and paradigmatic row, it does not explicitly reflect gender, number and person syncretism. This means that a word form may be classified as being distinct w.r.t the feature of case marking although it might be syncretic in respect of e.g. gender marking.

2.3   Types and patterns in Upper German case marking: Basic findings

Based on the method described in the previous chapter, 24,375 word forms were extracted from the transcriptions in Ruoff (1984). This large amount of data allows us to draw conclusions on case forms and relevant patterns of case marking systems in the Upper German area under investigation.

Word form frequencies, already mentioned as being an important factor in the description of case marking (Section 2.2) were identified in the corpus and are illustrated in the following table:[6]

Table 1. Word forms included in the empirical analysis

Word class	Total	Percentage
personal pronoun	7,627	31.3%
indefinite pronoun	620	2.5%
possessive pronoun	730	3.0%
demonstrative pronoun	3,222	13.2%
indefinite article	1,683	7.0%
definite article	6,510	26.7%
adjective	1,802	7.4%

As can be seen from Table 1, personal pronouns (7,631) as well as definite articles (6,513) form the most frequent word classes in the corpus. Following the argumentation in Section 1 – that frequent word forms contribute highly to the word classes' relevance for the description of case marking, the case marking types and patterns found for these two word classes carry greater weight in a description of case marking compared to adjectives (1529) and indefinite pronouns (620), which are found less frequently in the corpus.

Since the word classes have different morphological structures, the difference in frequency of word class correlates with a difference in frequency of case marking types. In Section 1, these types were described by the simplified representation of a seemingly binary system, in which these types either show affixation or suppletion. The diversity of word forms analyzed here, however, requires a more fine-grained representation of the spectrum between affixation and suppletion. Such a fine-grained representation for verbal categories in German inflection is

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6.   As can be seen from the numbers, a certain amount of forms which were initially regarded have been dropped in this analysis. This includes, for example, reflexive pronouns, which only mark the accusative and dative, and the indefinite pronoun *man*, which only marks the nominative.

introduced by Werner (1987), who argues that the diachronic development follows a certain trajectory, namely from inflection to partial and total suppletion.

In Corbett's (2007: 9–10), ideal of a canonical inflectional paradigm, the case marking type of suppletion is seen as a non-canonical phenomenon. While canonical case marking patterns are maximally distinct – in our example, they would be expected to mark nominative, accusative, and dative in each context – case marking types to which Corbett (2007: 9–10) refers to when defining stems canonically exhibit maximal identity. Thus, in his ideal paradigm, adding different inflectional affixes to a single stem per lexeme is seen as canonical, while total suppletion – just as total syncretism – is seen as noncanonical.

Dammel (2008: 26), who summarizes and classifies different works on degrees of irregularity and relates them to Germanic verbal inflection, proposes a standardized benchmark for the space between these two poles of affixation and total suppletion in the form of a continuum. This continuum starts at what is described as the canonical type of affixation in Corbett (2007). It then moves through a type of affixation which uses allomorphic stems and leads up to partial suppletion, involving different stems in parts of the paradigm. Then it progresses to non-canonical total suppletion, which uses different stems in each single cell of the paradigm (Dammel 2008: 26). Although Dammel's (2008) continuum cannot be transferred directly to the nominal category of case marking, the basic idea of gradient irregularity is included in the description of case marking types here. This concept was in addition to Werner (1987), Corbett (2007) and Dammel (2008) already outlined by e.g. Mel'čuk (1994), Nübling (1999) or Hippisley et al. (2004). The following statements present an attempt to roughly order the word forms alongside a continuum of irregularity and therefore to illustrate the case marking types found in my corpus.

The most canonical cases of affixation can be found with adjectives (1), possessive pronouns (2) and most[7] indefinite pronouns (3). If a single consonant *d* is counted as a stem, demonstrative pronouns (4) can also be considered a part of this case marking type.

(1)   Unterbergen [Friedberg], I/4948[8]
       masculine singular adjective
       nominative   *ganze*
       accusative   *ganza*
       dative   *ganza*

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7.   An exception to this is the indefinite pronoun *man*, which only expresses canonical nominative and can thus show total suppletion.

8.   The transcripts are cited as follows: The first items refer to the concrete recording location and its county (in square brackets), the second item refers to the identification code as stated in Ruoff (1984).

(2)   Königshofen [Dinkelbühl], I/5457
      masculine singular possessive pronoun
      nominative   *mãi*
      accusative   *mãi*
      dative   *mãin*

(3)   Öhringen [Öhringen], XI/250
      masculine singular indefinite pronoun
      nominative   oiner
      accusative   oin
      dative   oim

(4)   Königshofen [Dinkelbühl], I/5457
      masculine singular demonstrative
      nominative   *där*
      accusative   *den*
      dative   *dem*

The distinction in (4) however, cannot be treated on par with articles in Upper German dialects, although they would have a similar form in Standard German. Articles probably represent another case marking type, since they partly behave like demonstrative pronouns – as can be seen for both definite (5a) and indefinite (6a) articles – but, due to their tendency towards cliticization and merger, they show patterns of suppletion to some extent (5b) and (6b).

(5)   Bieringen [Künzelsau], I/5509
      masculine singular definite article
      a.   nominative   *d'r*
           accusative   *da*
           dative   *dem*
      b.   nominative   *d'r*
           accusative   *de*
           dative   *m*

(6)   Deilingen [Tuttlingen], XI/224
      masculine singular indefinite article
      a.   nominative   *an*
           accusative   *an*
           dative   *am*
      b.   nominative   *a*
           accusative   *n*
           dative   *ma*

The articles' tendency towards cliticization heavily complicates their paradigmatic visualization and the reconstruction of their case marking types. First, following

Nübling (1992: 6) – who primarily concentrates on the Upper German system of Alemannic – cliticization itself is seen as a gradual phenomenon which ranges from separate full forms to almost complete erosion. In addition, cliticization strongly interacts with syntagmatic phenomena. Those phenomena appear in different stages of cliticization, which Nübling (1992: 200) divides up into clisis of the article in contexts with or in those without a preposition (*free clitics* or *post-prepositional clitics*).

Thus, for the purpose of this analysis, the gradual behavior of the phenomenon complicates carving out the structure of a case marking type. For example, while Nübling (1992: 232–234) does not distinguish a stem in the morphological structure of the article itself, determining a stem-like element is the basis for reconstructing the case marking types in my analysis. Additionally, this reconstruction is further complicated by the fact that different levels and types of cliticization may occur within one paradigm – as can be seen in (5b), where the nominative is realized by a separate full form, but the dative form is only realized by changing a single phoneme.[9]

Finally, when we come back to the case marking types, personal pronouns are split up between showing partial suppletion (7) and total suppletion (8) according to different degrees of merger.

(7)   Hirrlingen [Tübingen], I/167
1st person singular pronoun
nominative *i*
accusative   *mi*
dative   *mr*

(8)   Frankenbach [Heilbronn], I/5487
masculine 3rd person singular pronoun
nominative *är*
accusative   *n*
dative   *m*

Yet, even the rough ordering of word forms alongside the case marking types as outlined above demands a high level of abstraction: First, as can be seen by the brevity of the word forms involved, which even often culminate in clitic forms, it is rather difficult to determine stems and affixes. Second, the word forms within the corpus contain a high amount of phonological variation, which does not allow for a precise statement on one global case marking type for each word form.

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9.   This analysis is only based on the transcriptions in Ruoff (1984). Of course, it cannot be put on the same level as phonetic transcriptions and thus might oversee some finer details which would allow a more elaborate classification.
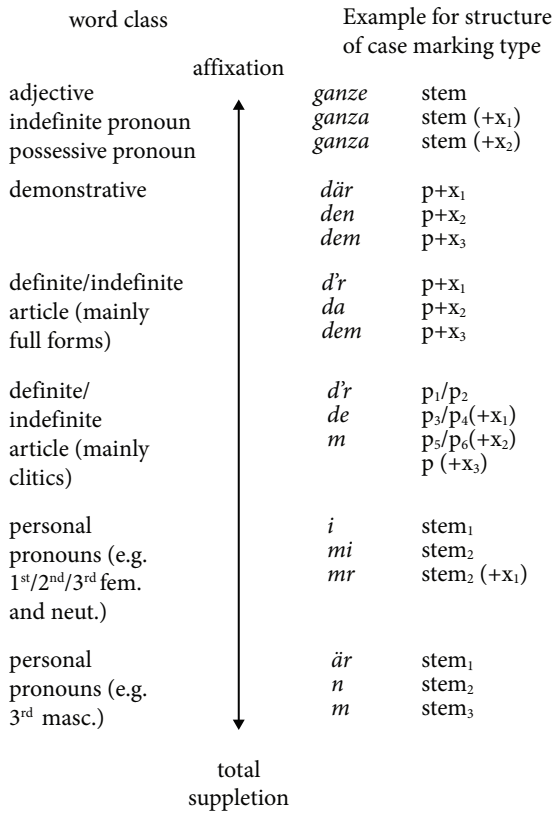
	word class		Example for structure of case marking type
		affixation	
	adjective	*ganze*	stem
	indefinite pronoun	*ganza*	stem $(+x_1)$
	possessive pronoun	*ganza*	stem $(+x_2)$
	demonstrative	*där*	$p+x_1$
		den	$p+x_2$
		dem	$p+x_3$
	definite/indefinite article (mainly full forms)	*d'r*	$p+x_1$
		da	$p+x_2$
		dem	$p+x_3$
	definite/ indefinite article (mainly clitics)	*d'r*	p_1/p_2
		de	$p_3/p_4(+x_1)$
		m	$p_5/p_6(+x_2)$
			$p\ (+x_3)$
	personal pronouns (e.g. 1st/2nd/3rd fem. and neut.)	*i*	$stem_1$
		mi	$stem_2$
		mr	$stem_2\ (+x_1)$
	personal pronouns (e.g. 3rd masc.)	*är*	$stem_1$
		n	$stem_2$
		m	$stem_3$
		total suppletion	

Figure 2. First attempt to define a rough structure of case marking type[10]

Despite these problems with precisely defining the case marking types of each word form, rough types of case marking can be determined as presented in Figure 2. Here, the types are ordered from affixation on the left to total suppletion on the right. These rough types serve as a guideline for the overview of the frequency as well as the case marking patterns of certain structures in case marking in Figure 3. There, the word forms are also ordered alongside the estimated degree of suppletion.

As can be seen from Figure 3, definite articles and personal pronouns occur far more frequently than other word classes. As commonly assumed (e.g. Nübling 1999: 83), these frequent word forms especially tend towards higher degrees of irregularity w.r.t. case marking types. Even though demonstrative pronouns are relatively high-frequent,[11] compared to word forms such as indefinite pronouns

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10. In the figure, *x* stands for a morpheme, while *p* stands for a phoneme.

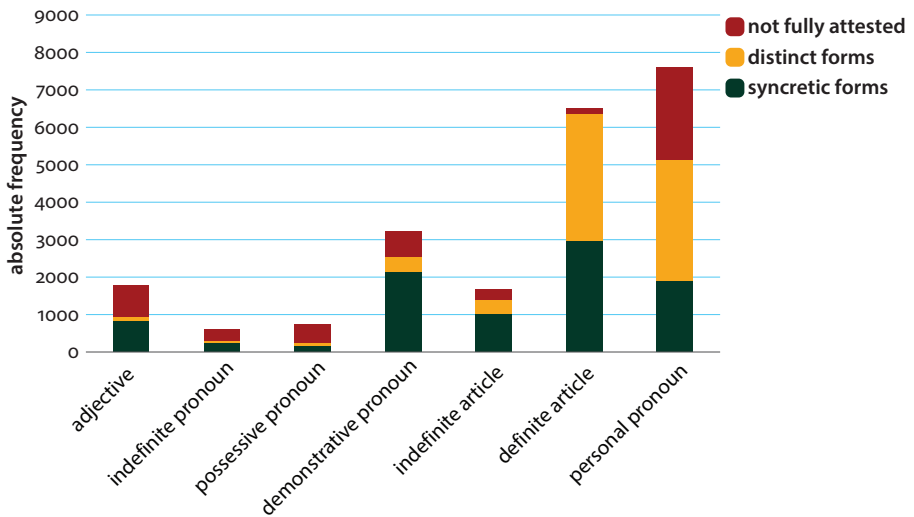11. Note that frequency is meant w.r.t token frequency.

Figure 3. Frequency and case marking patterns of word forms, sorted by (estimated) increasing degree of suppletion

and possessive pronouns as well as adjectives, they also show a high proportion of syncretic patterns. On the contrary, definite articles and personal pronouns – despite showing syncretic patterns as well – exhibit a high quantity of distinct forms. Hence, three concepts can be observed to run in parallel here: those word classes that tend towards more irregular case marking types also tend to have high frequency and a higher amount of distinct case marking patterns.[12] Therefore, those rather suppletive forms prove to be highly relevant case markers in a description of distinct case marking: they exhibit both features outlined in 2.2 – high frequency in spoken language and a high quantity of distinct forms.

Thus, a formal model of Upper German case marking first has to distinguish between different levels of irregularity in order to capture the relevant types of case marking ranging from the demonstrative, more concatenative type to total suppletion. Second, although distinct forms are much more common in articles and pronouns, syncretism was found in each of the case marking types in the data. Hence, the model needs to differentiate syncretism from distinction to be able to treat those contexts where syncretic patterns occur in otherwise distinctive word forms. These syncretic patterns would limit the features of case marking of the respective word form (according to the definition in 2.2).

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12. At this point, I will not enlarge upon a diachronic perspective on the interaction of these concepts. For a detailed description of the diachronic processes underlying their interaction see Werner (1987).

3.   Empirical data meets formal theory

3.1   PFM and the features of Upper German case marking

In this Section, I introduce and discuss the options PFM offers for modelling the relevant aspects of the Upper German case systems which were carved out in the previous chapter. In doing so, I mostly concentrate on the features of PFM as they are outlined in Stump (2001) and Stump (2016).

Inside his meta-theoretical typology of contemporary morphological theories, Stewart (2016: 67) defines PFM as a word-based, realizational and formalist approach. According to Stewart (2016), these features open up various opportunities for the analysis of case marking systems: The feature of being word-based instead of lexeme-based complies with the high relevance of suppletion in Upper German case marking, since it focuses on holistic forms which may also involve stem alternation rather than focusing on morphemes thus better suiting the case marking type of affixation (Stewart 2016: 6). Moreover, since PFM is realizational rather than incremental, the grammatical information is linked to the word form on a highly abstract level instead of being directly added to a root by affixation or morphological rules (Stewart 2016: 7). Thus, it is suitable for less transparently inflected word forms as those found in the Upper German data.

Baechler (2017) also argues for the use of PFM as an inferential-realizational approach to German, as it can adequately describe the phenomena characteristic of its inflectional system, in particular the coexistence of concatenative and non-concatenative structures (Baechler 2017: 80). She tested the PFM-approach as an instrument for measuring complexity in nominal inflection and applied it to her sample of Alemannic data. Her sample is constructed on the basis of data which originates from historical grammars and dialect grammars. These grammars already contain complete paradigmatic presentations which refer to grammatical systems of areas or single locations. Therefore, they concentrate on the morphological structures underlying the phonological surface instead of analyzing the phonological surface structure itself. Next to her wider view on grammatical categories – the study also involves number and gender – the analysis thus needs to consider less variation compared to the corpus-based data presented in this article – a fact that simplifies the process of formal modelling. Nevertheless, Baechler (2017) reflects and revises formal modelling in order to fit it to Upper German dialect data. For this reason, parts of her revisions shall be included into this discussion.

As mentioned before, PFM is a highly formal framework that uses paradigms instead of words as the starting point of morphological analysis. Each paradigm itself contains three dimensions that form distinct paradigms and are linked by functions, the latter being "defined in terms of more specific realizational rules"

Stump (2001: 33). These rules are included into the characteristic formalism of the approach, called *paradigm functions*. Figure 4 illustrates the basic structure of this paradigm linkage:
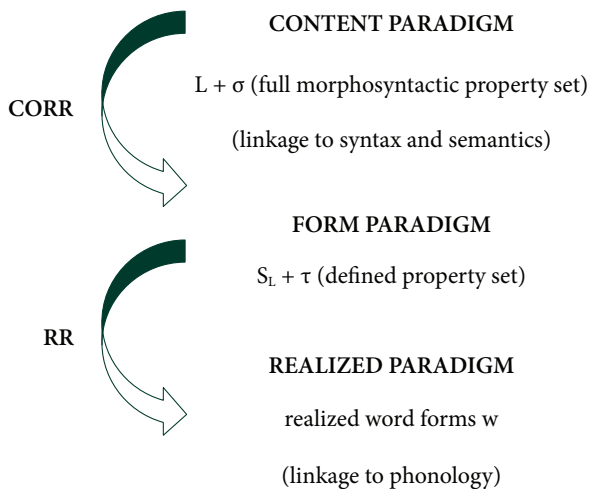

CORR

CONTENT PARADIGM

L + σ (full morphosyntactic property set)

(linkage to syntax and semantics)

FORM PARADIGM

S_L + τ (defined property set)

RR

REALIZED PARADIGM

realized word forms w

(linkage to phonology)

Figure 4. Basic structure of paradigm linkage in Paradigm Function Morphology (based on Stump (2016: 104)

The starting point of the model is the lexeme L, which corresponds to a case form (e.g. the definite article) in my data. L's paradigm function includes a content paradigm, a form paradigm, and a realized paradigm. The content paradigm marks the point where the lexeme is linked to syntax and semantics. It lists L and the maximum morphosyntactic property set (σ) which might be associated with L (Stump 2016: 104). This maximum property set is defined by the canonical cases in my data.

Each cell in L's content paradigm is linked to a form-correspondent in its form paradigm by a language specific form-correspondence function (Corr). This form paradigm represents the language-specific morphological features. The form paradigm lists the possible stems of Z (the list of all Zs is called S_L) of L and pairs them with those parts of the property set (σ) for which an expression is defined by the language's morphology. Those parts of the property set are called τ (Stump 2016: 104). The form paradigm represents the morphological level interposed between a level that defines the maximum features (content paradigm), which may be expressed by a language system and the actual phonological surface (realized paradigm).

Each cell in L's form paradigm is linked to a cell in its realized paradigm, i.e. its phonological surface, by realization rules (RRs). The realized paradigm finally contains the realized word forms w (Stump 2016: 104). These realized word forms in my data are defined by the word forms found in the corpus, and the cells in the realized paradigm mark the level that manifests the case marking patterns I found in the data.

By modelling my data in PFM, I am able to construct the cells of the content paradigm and link them to respective realized forms. The challenging but interesting part of the process will therefore be to use the building blocks Stump (2016) and Baechler (2017) provide in order to reconstruct the process that connects the content cells to the realizations.

3.2   Modelling case marking types

The Upper German data have shown that non-concatenative case marking structures are highly relevant. Those non-concatenative structures culminate in suppletive paradigms. Thus, the building blocks which are offered for modelling suppletion by the theory constitute a good starting point for the reflection on PFM.

A problem with Stump's (2016: 184–196) description of suppletive paradigms is that he only focuses on those problems that are based on the L's membership in different inflectional classes. These are the only examples he mentions for differing stems of Z and differing affixation within the paradigms of single lexemes. He locates the trigger for suppletion in the form-correspondent function (Corr) (Stump 2016: 189–190).

This, however, complicates the description of each level of irregularity that has been found for the Upper German case marking types in the empirical data.[13] If the choice of a stem type is located in the form-correspondent function and defined by a pairing of stem and affix, it is nearly impossible to describe a paradigm of definite articles like e.g. (5a):

(5)   Bieringen [Künzelsau], I/5509
      masculine singular definite article
      a.   nominative   *d'r*
           accusative   *da*
           dative   *dem*
      b.   nominative   *d'r*
           accusative   *de*
           dative   *m*

First, these case markers exhibit a high range of variation as well as a strong tendency towards non-concatenative structures on the realized word forms (5b). This complicates reconstructing an either constant or alternating stem Z that can be modified and listed in the form paradigm's cells. Second, to list those alternations

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13. Stump (2016: 187–188) only briefly mentions stem alternations conditioned by phonological influence of the inflectional affix. Nevertheless, this does not expand this aspect to a further discussion of levels of irregularity.

not caused by a certain morphosyntactic property but e.g. by phonological context – which might yet be relevant to the case marking system – they would have to be separately located within the realizational rules (RRs).

Stump (2016: 185) mentions the existence of "a more subtle sort" of suppletion, including "stems which, though independent, nevertheless exhibit a partial similarity in form". The phenomenon could be rated as partial suppletion. Nevertheless, he does not expand on differences in modelling this phenomenon from other non-concatenative structures, such as total suppletion. This, however, would be an important factor for modelling the relevant case marking patterns in the data, as those case marking patterns may vary based on the gradual behavior of suppletion shaping the case marking types.

Baechler (2017) (who refers to Stump (2001)) also addresses a formal model of stem alternation and argues that stem formation should be handled similarly to affixation and be seen as a phonological process of modifying a lexeme's roots. She thus locates the process completely inside the realizational rules (RRs); therefore, the process only affects the realized word forms and is not indicated in the form paradigm. In doing so, she argues that phenomena of non-concatenative morphology can be described without problems (Baechler 2017: 103–104). Since non-concatenative behavior partly defines the levels of irregularity which form the case marking types that diverge from affixation in this article's empirical data (see e.g. the example of definite article above), this revision therefore proves useful here.

Baechler (2017) also supplements the RRs deriving different stems from a single root by adding conditions of context or even morphosyntactic features that trigger the choice of a certain stem Z. Thus, she bundles the potential conditioning factors of suppletive patterns at the same place instead of spreading them over the form-correspondence function Corr and realization rules, as Stump (2016) does.

If we get back to the previous example of masculine definite articles in the Upper German data and start to model the diverse realized case forms found in the corpus, following Baechler's (2017) supplement, we need to face the issue of variation. Variation here is defined as variation in realized word forms (w_1, w_2,…) of a single lexeme L that leads to varying levels of irregularity and different patterns of distinction in the case marking type, as e.g. in (9a) and (9b).

(9) Meßbach [Künzelsau], I/812, masc. sg. definite article
    a.   nominative *där*
          accusative *den*
          dative   *dem*
    b.   nominative *da*
          accusative *da*
          dative   *em*

(9a) and (9b) illustrate paradigms of the masculine definite article based on a single speaker's system. As can be seen from the variation within the examples modelling the case marking types of the articles found in the analysis would either require tremendous abstractions or, following Baechler's (2017) supplement, lead to an expansive listing of RRs. The latter is caused by her solution to the issue of varying realized forms relating to the same paradigmatic cell – a pattern which is often found in German dialects and includes both syntactically conditioned as well as free variation. In order to model this phenomenon, she states a single RR for each realized word form. Since a more specific RR would override a specific one in the PFM theory, those RRs need to be equally specific in order to be equivalently connected to the same cell (Baechler 2017: 178–181). In contrast to the data set analyzed by Baechler (2017), the present analysis focuses on the surface structure, and, since this leads to much more variation within the data, the database would have required an extensive listing of RRs.

In order to avoid such a proliferation of RRs, we would instead want to only model abstracted word forms, e.g. only the most frequent case marking type, within the RRs. This, however, may also cause a problem: As shown in Section 2, the case marking types vary in their respective case marking patterns. The more concatenative types tend to show more syncretic forms, while the more suppletive types tend to show more distinct forms. If lexemes thus vary within case marking types, as is the case for the definite article in (9a) and (9b), this variation may also influence variation on the level of case marking patterns. This would in turn affect the word form's relevance to the case marking system. When further abstracting case marking types within the modelling of the RRs we have to be careful not to cover those relevant aspects of variation. The abstraction thus could also cover potentially relevant triggers of distinct or syncretic case marking patterns. To keep the option to further develop the model with respect of the relevant aspects of variation was the initial argument (outlined in 2.1) for concentrating on the surface structure.

3.3   Modelling case marking patterns

As introduced in Section 2, even those case forms which have proven relevant for Upper German case marking systems show a high number of syncretic tokens. Before we can reflect upon syncretism in PFM, we need to re-account for the special definition of syncretism on the empirical level:

First, as already noted in 2.2, the corpus-based perspective only allows for a synchronic definition of syncretism within the analysis. This definition neither allows for secure knowledge on previous distinctions nor on directions of case leveling.

Second, whether a case form features syncretism or distinction is only determined by case.[14] The classification into syncretism or distinction within the data is solely based on a paradigmatic row, i.e. on the distinctions within one grammatical category. Thus, a case form might be classified as being distinct (with regard to case) in this analysis, although it might show syncretism in gender, number or person. This design allows us to evaluate categories such as gender, number, and person equal to potential non-morphological factors of influence on case syncretism, such as e.g. animacy or word order.

These special features of the definition of syncretism in the empirical data become highly relevant when we model syncretism. Stump (2016) distinguishes between three basic types of syncretism which can be modeled in PFM: First, there is *natural class syncretism*. This type is defined as two cells in the content paradigm sharing at least parts of their morphosyntactic property set σ and thus relating to a common cell in the form paradigm, since they constitute a natural class (Stump 2016: 170–175). Such a natural class syncretism can be presumed for the gender syncretism in the Standard German paradigm of the 3 PL personal pronoun: it is realized by *sie* for each gender in the nominative, while in the sg. paradigm, there is a full gender distinction. Since σ contains the property of 'plural' in each of the underlying content cells, those cells form a natural class.

Considering the definition of syncretism in the empirical data, this type of syncretism does not prove to be relevant for a description of case marking features of Upper German dialects. As mentioned before, canonical case is the only morphosyntactic property in σ which is relevant to the classification of syncretism and distinction in the analysis. Therefore, if the cells would show syncretism based on this property and hence constitute a natural class, there would be no distinction left within the paradigmatic row. The word form would not be defined as a case marker in this analysis and, therefore, be irrelevant for the description of the system.

The second type of syncretism described in Stump (2016) is *directional syncretism*. This type relates to a cell in the content paradigm which corresponds to another cell's form-correspondent and therefore shares its realization (Stump 2016: 175). This type of syncretism might fit the properties of Upper German data if we assume two distinct content cells that are only distinguished in canonical case and share a form correspondent. An example would be the masculine definite article in (10):

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14.   In order to keep the design transparent, the analysis is restricted to the category of case here. In the overall study, several other categories, such as for example gender and number, are tested as independent variables.

(10)   Bühl [Günzburg], I/4922
        masculine singular definite article
        nominative   *dr or de*
        accusative   *dr or de*
        dative   *(e)m*

While there is a distinct realization of the dative, there is a syncretic realization of nominative and accusative (both *dr* or *de* can occur in both canonical cases). Following the argumentation of the latter being a directional syncretism, we would argue that nominative and accusative would share a common form correspondent, although they have two distinct content cells.

Nevertheless, modelling directional syncretism would require us to determine which content cell – the nominative one or the accusative one – was initially connected to this common form correspondent. This, however, would require a diachronic argumentation that cannot be provided on the basis of the synchronic empirical data and is not required for a synchronic description of a case marking system.

The third type of syncretism introduced by Stump (2016) is *morphomic syncretism*. This type is based on morphosyntactic distinctions which elementarily are disposed on the level of content cell but are neutralized by a morphomic property in τ (Stump 2016: 179–180). Thus, the language-specific morphology does simply not contain a morphological definition for a realization of a case distinction within the system, although the case is distinct in other contexts.

This type of syncretism might be a plausible scenario for at least some patterns of case marking found in the Upper German dialects. In this scenario, I would then argue that these patterns are solely based on morphological processes, dissociated from semantic or morphosyntactic factors. Excluding these influences, this type of syncretism could only be discussed for specific patterns. Since varying case markers based on syntactic, semantic and even phonological influence are a common phenomenon in (Upper) German dialects (see e.g. Baechler 2017; Dal Negro 2004), we would need to empirically exclude this possibility in order to prove a syncretic pattern only based in morphomic properties. At this state of the analysis of the empirical data, no syncretic pattern can safely be interpreted as showing morphomic syncretism. This issue is partly based on the problem that at this stage of the analysis, the syntactic, semantic and phonological influences on syncretism cannot be fully determined in the data. Such a determination requires deeper analysis of the material.

As shown here, modelling syncretism based on Stump (2016) still causes some problems which are partly based on the current state of the empirical analysis as well as on the conflicts between the corpus-based approach and the formal model. Regarding the type of syncretism, there is also no solution provided by Baechler

(2017). Since she does not focus on modelling certain types of (case marking) patterns but instead focuses on measuring complexity within the paradigm, she transfers the modelling of syncretism to the RRs in order to provide a consistent benchmark (Baechler 2017: 97); thus, she neglects relevant differences between syncretic patterns.

4.   Discussion and conclusion

As can be seen from the reflection in 3.3, there are some issues that arose in modelling the case marking patterns found in the Upper German data. These issues are mainly determined by the corpus-based design of the empirical analysis, which is settled on the phonological surface structure. This design leads to a purely synchronic view of case marking patterns, which does not allow for assumptions on previous states of the system. In order to arrive at a more refined modelling in PFM, one would need to classify the type of syncretism – e.g. directional or morphomic syncretism. This would constitute an interesting focus for future research.

Section 3.2 described the problems that occur when modelling Upper German case marking types using Stump's (2016) initial approach, since it does not incorporate the gradual behavior shaping the Upper German case marking types. However, this section also mentioned a problem that occurs when working with Baechler's (2017) method even though it has already been adjusted to the features of the Upper German system. This problem is based on the different starting points: While Baechler's (2017) analysis focusses on morphological structures, the current analysis rather focusses on the phonological surface structure. Therefore, Baechler's (2017) refined formalism still is not fit for the high amount of variation in the current analysis and would therefore lead to an extensive description in the present context.

This formal description would grow even more expansive if we were to incorporate those details of the system that have not been addressed up to now. First, for the present analysis I chose word classes to be the smallest unit of description. Those word classes can be further divided into the categories of gender, number, and person. These categories also strongly influence case marking types as well as case marking patterns and are already considered in Stump's (2016) and Baechler's (2017) versions of the formalism. Second, so far, I have considered the area of investigation to be homogenous with regard to its case marking system. In reality, it can be divided into several sub-areas which exhibit distinct case marking systems (see e.g. Shrier 1965).

Although it offers some useful building blocks for the modelling, the formalism of PFM is not equipped to model the diverse aspects of variation and gradual

behavior shaping my data on Upper German case marking. To include these diverse aspects into the formalism of the approach would mean constructing an extremely expansive model. This model would require a complex procedure, but would certainly not grow to be lucid or user-friendly. Therefore, the expense to construct such a description would be incommensurate with the benefits it would offer. Thus, I will not opt for a description of the complete Upper German case marking system, which is analyzed in my study.

Nevertheless, the formalism involved using the PFM approach can certainly be useful for describing individual aspects of the system. In addition, the approach aims at maximal empirical coverage and has thus already been implemented for different language systems (see e.g. Stewart 2016 and Stump & Finkel 2013). Hence, PFM offers the benefit of straightforward typological comparisons of certain detailed structures found in the data based on similar modelling.

Acknowledgements

References

Alber, Birgit & Rabanus, Stephan. 2011. Kasussynkretismus und Belebtheit in germanischen Pronominalparadigmen. In *Dynamik des Dialekts – Wandel und Variation* [Zeitschrift für Dialektologie und Linguistik. Beihefte 144], Elvira Glaser, Jürgen E. Schmidt & Natascha Frey (eds), 23–46. Stuttgart: Steiner.

Baechler, Raffaela. 2017. *Absolute Komplexität in der Nominalflexion: Althochdeutsch, Mittel-hochdeutsch, Alemannisch und deutsche Standardsprache* [Morphological Investigations 2]. Berlin: Language Science Press.

Baerman, Matthew, Brown, Dunstan & Corbett, Greville G. 2005. *The Syntax-morphology Interface: A Study of Syncretism* [Cambridge Studies in Linguistics 109]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511486234

Blake, Barry J. 2001. *Case*. Cambridge: CUP. https://doi.org/10.1017/CBO9781139164894

Bonami, Olivier, Boyé, Gilles & Fabiola, Henri. 2011. *Measuring inflectional complexity: French and Mauritian*. Workshop Quantitative Measures in Morphology and Morphological Development, San Diego CA.

Brown, Dunstan & Chumakina, Marina. 2014. What there might be and what there is: An introduction to canonical typology. In *Canonical Morphology and Syntax*, Dunstan Brown, Greville G. Corbett & Marina Chumakina (eds), 1–19. Oxford: OUP.

Bybee, Joan. 1985. *Morphology: A Study of the Relation Between Meaning and Form* [Typological Studies in Language 9]. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.9

Corbett, Greville G. 2007. Canonical typology, suppletion, and possible words. *Language* 83(1): 8–42. https://doi.org/10.1353/lan.2007.0006

Dal Negro, Silvia. 2004. Artikelmorphologie: Walserdeutsch im Vergleich zu anderen alemannischen Dialekten. In *Alemannisch im Sprachvergleich: Beiträge zur 14. Arbeitstagung für Alemannische Dialektologie* [Zeitschrift für Dialektologie und Linguistik Beihefte 129], Elvira Glaser & Natascha Frey (eds), 101–111. Stuttgart: Steiner.

Dammel, Antje. 2008. Flexionsmorphologische Irregularität – ein graduelles Phänomen: Doch wie lassen sich Grade bestimmen? In *Morphologische Irregularität* [Diversitas Linguarum 19], Cornelia Stroh & Aina Urdze (eds), 1–28. Bochum: Brockmeyer.

Ellsäßer, Sophie. 2017. Analysing case in spoken language: A corpus study on East Franconian dialects. *Linguistic Discovery* 15(1): 66–84. https://doi.org/10.1349/PS1.1537-0852.A.476

Hippisley, Andrew, Chumakina, Marina, Corbett, Greville G. & Brown, Dunstan. 2004. Suppletion: Frequency, categories and distribution of stems. *Studies in Language* 28(2): 387–418. https://doi.org/10.1075/sl.28.2.05hip

Mel'čuk, Igor A. 1994. Suppletion: Toward a logical analysis of the concept. *Studies in Language* 18 (2): 339–410. https://doi.org/10.1075/sl.18.2.03mel

Nübling, Damaris. 1992. *Klitika im Deutschen: Schriftsprache, Umgangssprache, alemannische Dialekte* [Script-Oralia 42]. Tübingen: Narr.

Nübling, Damaris. 1999. Zur Funktionalität von Suppletion. In *Variation und Stabilität in der Wortstruktur: Untersuchungen zu Entwicklung, Erwerb und Varietäten des Deutschen und anderer Sprachen* [Germanistische Linguistik 141/142], Matthias Butt & Nanna Furhop (eds.), 77–101. Hildesheim: Olms.

Rabanus, Stefan. 2008. *Morphologisches Minimum: Distinktionen und Synkretismen im Minimalsatz hochdeutscher Dialekte* [Zeitschrift für Dialektologie und Linguistik Beihefte 134]. Stuttgart: Steiner.

Rauth, Philipp. 2016. Die Rolle dialektaler Kasussysteme bei der Abfolge ditransitiver Objekte. In *Syntax aus Saarbrücker Sicht, I: Beiträge der SaRDiS-Tagung zur Dialektsyntax* [Zeitschrift für Dialektologie und Linguistik Beihefte, Band 165], Augustin Speyer & Philipp Rauth (eds), 109–135. Stuttgart: Steiner.

Ruoff, Arno. 1973. *Grundlagen und Methoden der Untersuchung gesprochener Sprache* [Idiomatica 1]. Tübingen: Niemeyer.

Ruoff, Arno. 1984. *Transkriptionen von Tonbandaufnahmen aus Baden-Württemberg und Bayrisch-Schwaben* [Idiomatica 10]. Tübingen: Niemeyer.

Ruoff, Arno. 1990. *Häufigkeitswörterbuch gesprochener Sprache: Gesondert nach Wortarten: Alphabetisch, rückläufig-alphabetisch und nach Häufigkeit geordnet* [Idiomatica 8]. Berlin: De Gruyter.

Seiler, Guido. 2003. *Präpositionale Dativmarkierung im Oberdeutschen* [Zeitschrift für Dialektologie und Linguistik Beihefte 124]. Wiesbaden: Steiner.

Shrier, Martha. 1965. Case systems in German dialects. *Language* 41(3): 420–438. https://doi.org/10.2307/411785

Stewart, Thomas W. 2016. *Contemporary Morphological Theories: A User's Guide.* Edinburgh: EUP.

Stump, Gregory T. 2001. *Inflectional Morphology: A Theory of Paradigm Structure* [Cambridge Studies in Linguistics 93]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511486333

Stump, Gregory T. 2016. *Inflectional Paradigms: Content and Form at the Syntax-morphology Interface* [Cambridge Studies in Linguistics 149]. Cambridge: CUP. https://doi.org/10.1017/CBO9781316105290

Stump, Gregory T. & Finkel, Raphael A. 2013. *Morphological Typology: From Word to Paradigm* [Cambridge Studies in Linguistics 138]. Cambridge: CUP. https://doi.org/10.1017/CBO9781139248860

Vajda, Edward J. 2003. Review of: Inflectional Morphology: A Theory of Paradigm Structure. *Modern & Classical Languages* 44: 224–225.

Werner, Otmar. 1987. Natürlichkeit und Nutzen morphologischer Irregularität. In *Beiträge zum 3. Essener Kolloquium über Sprachwandel und seine bestimmenden Faktoren, 30.9–2.10.1987 an der Universität Essen* [Bochum-Essener Beiträge zur Sprachwandelforschung 4], Norbert Boretzky & Hans den Besten (eds), 289–316. Bochum: Studienverlag Brockmeyer.

Thoughts on morphomes,
on a Scandinavian background

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Since Aronoff (1994), the notion of morphomic patterns, i.e. inflectional patterns without complete motivation from outside of morphology, has gained popularity, especially in works on Romance (e.g. Maiden 2016a). However, the approach has also been criticized. Bowern (2015) suggests that there is very little evidence for autonomously morphological patterns arising. This paper presents a number of Scandinavian counter-examples to her claim. Bermúdez-Otero & Luís (2016) present a number of meta-theoretical objections against the notion of morphomic patterns. Arguments are presented to the effect that a number of these objections are less significant than they appear; some are even misguided.

1. Introduction

The purpose of this paper is to discuss the "morphome", and the criticism it has encountered, in the light of some well-known Scandinavian data that relate to diachrony. Central examples of morphomes include inflection classes, and we focus on how some diachronic changes pertaining to inflection classes in Scandinavian are relevant for the "morphome debate".

The morphome concept goes back to Aronoff (1994). Many scholars have considered it fruitful, but it has also come in for criticism, e.g. by Bowern (2015), Bermúdez-Otero & Luís (2016). I submit that some of this criticism is unwarranted, and that the notion of morphomes is useful. It helps us highlighting facts that show some autonomy for morphology. In Section 2 of this paper, the morphome concept is explicated. In Section 3, we look at the criticism that has been raised by Bowern (2015). Some case studies from Scandinavian diachrony and their implications are presented in Section 4. Together with arguments presented in Section 3, they indicate that Bowern's objections are misplaced, at least to a considerable extent. Some further objections against the morphome, stemming from Bermúdez-Otero & Luís (2016), are discussed and ultimately rejected in Section 5. Section 6 summarizes the paper.

2.   Explicating the morphome

2.1   Outlining the morphome

Briefly, morphomic patterns are morphological – more precisely inflectional – patterns without complete motivation from outside of morphology, i.e., they are not completely motivated 'extra-inflectionally'. Morphomes are "morphological templates", as it were. It is important to note at the outset, however, that morphomes can be partly motivated from outside of morphology (e.g. Maiden 2013b; Smith 2013).

Standard examples of morphomic patterns include inflection classes and cases of unmotivated systematic formal identity. One of Aronoff's (1994) examples is the formal identity in English between the passive participle and the perfect participle (also known as past participle). The same form is employed in what Aronoff sees as two separate functions, as in *she was seen – she has seen; she was talked (of) – she has talked*. Whatever is the form of one participle, will be the form of the other. According to Aronoff, there is no semantic or syntactic reason for this formal similarity.

Another example of morphomic patterning is what Maiden (2016b and elsewhere) calls "L-patterns": There is, for some Romance verbs, a distinctive root allomorph within some cells of the present tense, more specifically the 1SG present indicative and the whole of the present subjunctive. Those cells share a distinctive root allomorph that is not shared with the rest of the paradigm.

Table 1. A Portuguese example of the Romance L-pattern, verb *ter* 'have'. The shading is meant to show the similarity with an 'L'

1SG	2SG	3SG	1PL	2PL	3PL	
te[ɲ]o	tens	tem	temos	tendes	têm	PRS.IND
te[ɲ]a	te[ɲ]as	te[ɲ]a	te[ɲ]amos	te[ɲ]ais	te[ɲ]am	PRS.SBJV

It is hard to see any good reason for this sharing – or any natural class at work here. Yet the identity in form can hardly have gone unnoticed by speakers, since abundant diachronic evidence indicates productivity for the L-pattern. That is, independently of the particular material that may "fill" the particular cells, there is a pattern of identity.

Historically speaking, the L-pattern arose as "paradigmatically accidental, yet phonologically disparate effects of palatalization by yod, and of slightly later palatalization of velar consonants before front vowels, in proto-Romance" (Maiden 2016a: 37). Maiden (2016a: 38) observes that "All analogical changes affecting the […] L-pattern faithfully replicate the inherited distributional pattern, even when what is involved is the creation of novel alternations whose phonological content is different from the output of the original phonological process."

Another example is the so-called N-pattern in Romance, where the forms of the first, second, and third persons singular, and of the third person plural, in the present indicative, present subjunctive, and imperative singular, share formal characteristics not found elsewhere in the paradigm of the verb. Aronoff calls morphomic patterns "pure form".

2.2   Not useless after all: Intra-morphological meaning

With a pointed formulation, Aronoff (1994: 46) even refers to morphomic patterns as "useless". Yet "useless" may be an unhelpful rhetorical exaggeration. It does indeed seem useless for purposes *outside of* morphology that the shape of one particular member of the paradigm should signal, as it were, the shape of another member of the paradigm. Nevertheless: Given the generality, persistence and even diachronic productivity (spreading) of, for example, the Romance L-pattern and the N-pattern, it is hard to believe that they serve no purpose whatsoever. If speakers generalize a pattern, the reason must presumably be that it is *somehow* useful to them. If not, why do they generalize it?[1]

In other words: If a number of changes point in a certain direction, this fact may indicate some 'psychological plausibility' for a particular generalization. Thus, "diachronic data should be expected to corroborate [...] postulations about synchronic structure" (Maiden 2001: 45).

Admittedly, a cautionary note is in order on such words as 'signal'. If a particular verb ends in /ær/ in the present tense in the Grenland dialect of Norwegian (see Table 4a below) the past tense of that same verb will invariably end in /a/. Yet, when a Grenland speaker attaches an ending /ær/ to a verb stem, creating the present tense form of that verb, that is presumably not done in order to "signal" that the past tense ending of that verb will be /a/, the way a station-master would choose the red light in order to signal that the northbound train must wait. Rather, we are dealing with acquisition strategies. When confronted with two different suffixes, such as the present tense suffixes /ær/ and /er/ in Table 4a, the human mind will look for "pegs" which these suffixes can be hanged on to, so to speak (cf. e.g. Carstairs-McCarthy 1994, 2001, 2010). It will then latch on to the difference that /ær/ links to /a/, /er/ to something else. So rather than saying that /ær/ should "signal" the past tense shape of the verb, we may speak of /ær/ having an "intra-morphological meaning" (Carstairs-McCarthy 1994, 2010), or that /ær/ has the implication to /a/ as part of

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1.   A reviewer rightly suggests that regularity may arise from overgeneralization, far beyond the original (and already abstract) function. Many cases of morphemes spreading are exactly that.

its *signatum* (in the sense of Carstairs-McCarthy 2002). In yet other words, we may say that /ær/ is an "index" of the shape of the past tense of the verb (cf. e.g. such functionalists as Andersen 2010; Nielsen 2016).

2.3   Why emphasize morphomes?

Morphomic patterns, then, are patterns in inflectional morphology – "morphological templates" – whose motivation cannot be reduced to factors outside of inflection. The claim that there is a morphomic level is merely a claim that morphology has patterns of its own; neither fully reducible to nor fully predicted by anything outside of morphology.

The morphomic perspective is a useful antidote against "syntacto-centrism". Jackendoff (2002: 107–111) characterizes syntacto-centrism as the idea that "syntax is the only generative component, that is, the only component that explicitly gives rise to combinatoriality". Jackendoff calls the idea "purely an assumption" for which "no argument has ever been offered", and he argues that "along with the formal syntacto-centrism of the framework has come a […] reluctance to explore solutions in other than syntactic terms", which has "lead to criticism from every quarter".

The emphasis on morphomic patterns can lead to an emphasis on the arbitrariness of the sign, on "un-natural" morphology. In emphasizing unnaturalness, the morphomic tradition continues the tradition from "word-and-paradigm" models.[2]

The willingness to admit autonomous morphology has resulted in an emphasis on patterns that may seem not only useless (cf. 2.2), but also very local, such as the Romance L-pattern, but it is worth recalling that this holds for many other units of grammar and lexicon, too. Why would speakers bother to operate with anything so relatively useless, at least at first sight, and local as, say, assignment rules for the genders of German? Yet they do. Why would speakers operate with say, the assignment rules that "nouns denoting strong alcoholic beverages are masculine in German", or "nouns denoting dairy products tend to be masculine in Norwegian"?

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2.   Within many other traditions of linguistic thinking, there has been an emphasis on naturalness in morphology in the sense of a 1: 1 mapping of function and form, e.g. Natural Morphology in Mayerthaler's (1981) version, but much less in Wurzel's (1984) version. (Thanks to Antje Dammel for pointing out this difference to me.) Recently, the slogan 'taking morphology seriously' has become a popular label for emphasis on a rather different kind of naturalness in morphology, see 5.3 below. One may perhaps ask if those linguists that are most skeptical towards unnaturalness in morphology are equally skeptical towards unnaturalness in syntax. Since many of them are not, 'syntacto-centrism' may have to do with this difference.

Yet apparently they do (Enger 2009).[3] If morphomic patterns appear to be redundant, well, so do many phenomena in human languages, which invariably contain massive redundancy (Dahl 2004).

Many languages do nicely without, say, a morphomic L-pattern, but then, this is only to be expected if there are few truly "meaty" categorical empirical universals anyway (e.g. Haspelmath 2008; Evans & Levinson 2009). The label "crazy rules" has been used about such generalizations as the one on German beverages (Enger 2009), and from the linguist's perspective, such rules are indeed "crazy", as they are isolated from the semantic core of gender systems. From the speaker's perspective, however, there is nothing crazy about such rules; the "human mind is an inveterate pattern-seeker" (Blevins & Blevins 2009: 1).

There is, on some points, a convergence between the morphomic approach and functional/cognitive views (see also Blevins 2016). We have already noted the similarity between talking of "intra-morphological meaning" and talking of "indexes" (Section 2.2). Furthermore, from a psycholinguistic perspective, Dabrowska (2004: 144–148, cf. also 2006) argues that "the most robust generalizations appear to be local". On the basis of diachronic evidence, Joseph (2011: 415) says speakers "act as if they are in a fog [...] not that they are befuddled but that they see clearly only immediately around them [...] they thus generalize only 'locally'." This recalls Paul's (1880: 22) words that "in any change, only a small step can be made" ("Bei jeder veränderung kann nur ein kurzer schritt getan werden"), and Joseph's point is supported by metonymic step-by-step generalizations, as found in semantic change and grammaticalization processes.

In syntax, construction grammarians (such as Goldberg 2006; Langacker 2008; Hudson 2010 and Haugen 2014) argue that, in addition to general constructions, more specific constructions are needed to account for the actual diversity of data from natural languages. That means "locality" and memorization; these two factors are also essential for morphomic accounts, cf. Maiden (2018: Chapter 2).

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3.   While *Bier* 'beer' may seem a counter-example, being neuter, beer is not a strong alcoholic beverage, at least not on a German understanding (nor are cocktails, incidentally), and it would be unreasonable to expect generalizations without exceptions in this field. A rule is valuable even if it has exceptions.

3.   On some recent objections against morphomic patterns

Many morphologists working on inflection have considered the idea of autonomous morphology, or morphomic patterns, promising. This holds in particular for the Romance languages, witness e.g. works by Maiden (2005, 2011a, 2011b, 2013a, 2013b, 2016a, 2016b, 2017, 2018), Loporcaro (2013), Esher (2015a, 2015b), O'Neill (2013), but also for other languages, such as German (e.g. Demske 2008, Carstairs-McCarthy 2008), English (Aronoff 1994, Blevins 2003), Scandinavian (Enger 2013, 2014), Greek (Sims-Williams 2016), and Kayardild (Round 2016).

Nevertheless, in what is meant to be an informative overview in a fairly recent handbook chapter, Bowern (2015: 245) dismisses ideas about the persistence of autonomous structures in diachrony, arguing that they

> are not widely accepted in historical morphology. Anderson (2011), for example, provides a detailed critique of Maiden's analysis of Rumantsch data and argues that the patterns which argue for autonomous morphology can also be described by straightforward phonological conditioning. A further curious paradox is that discussions of morphological autonomy have tended to stress its stability; even while much work on morphological instability has appeared (particularly under the study of analogical change).

In my view, this conclusion is weakly motivated, and, given the authority of the *Oxford Handbooks*, we shall spend some time on the reasons why.[4]

3.1   The sociological argument

While the argument that an idea is "not widely accepted" clearly is relevant in a handbook, it is still not very strong; what is not widely accepted may nevertheless be right. Also, the correctness of this particular claim of Bowern's is open to dispute. Most morphologists I happen to know accept the basic claims of the autonomous/ "morphomic" approach, even if they may not be thrilled. It is hard to know what is "widely accepted" in linguistics these days. The field has long been fragmented, cf. Matthews (2001: 151).

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4.   Arguments against the persistence of autonomous morphological patterns in diachrony need not be arguments against autonomous structures as such, i.e. within synchronic states, but this cannot be pursued here.

3.2   The Savognin argument and a preliminary conclusion

The claim in Bowern's second sentence represents a distortion of Anderson's (2011) argument. Anderson does not claim that patterns used to argue for autonomous morphology *in general* can be described by straightforward phonological conditioning. His claim is simply that one specific alternation in Savognin (a Surmiran variety of Rumantsch) had better be described that way. Furthermore, Anderson's critique is not "generally accepted", either. Thus, Maiden (2011b) replies to Anderson in the same volume. Anderson (2013) has replied further, and Maiden (2017) yet again. Whatever may be the best analysis of one alternation in one particular dialect in Switzerland, it is unexpected to see Anderson invoked in order to argue a case against the autonomy of morphology (see e.g. Anderson 1992, 2017).

The upshot is that Bowern's two main arguments for dismissing autonomous morphology in diachrony are not quite convincing, so her conclusion, in what is meant to be an informative handbook that can help the outsider, is not convincing, either.[5]

3.3   Stability and change: And clarification of a hypothesis

Bowern's third point is more interesting. In/stability clearly is an important issue, and the "stability of morphemes" may seem to be just a fancy new name for the familiar conservatism of morphology. Yet, if actual forms in cells are changed while a more abstract pattern is not, this testifies to the autonomy of morphology. If this more abstract pattern does not relate to anything outside morphology, the point is supported. In particular, if innovations make sense, given the assumption of morphological autonomy, they support the idea, since innovations surely cannot count as manifestations of conservatism.

In this connection, Bowern's claim (2015: 249) that there is "very little evidence for change which operates on morphology alone" is interesting. In a similar

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5.   A reviewer suggests restating the debate as follows: The proponents of morphemes state (A) that there are purely morphological phenomena, which may (but need not) persist and even spread in language change. Many of the counter-arguments seem to involve statements to the effect that (B) many phenomena do not pertain solely to morphology. Yet it is hard to see that B is terribly relevant for A; the observation that many phenomena do not pertain to morphology alone does not contradict the claim that some phenomena do. The reviewer goes on to ask what the morphomic approach predicts, in terms of change. However, morphemes are not empirical hypotheses; they are terms/concepts (cf. Section 5.1 below). On a more positive note, the morphomic approach opens for morphologization and for autonomously morphological structures.

vein, Wurzel (1984) thought that morphology always is "reactive" (rather than active). A different point of view is argued by, for example, Dressler (2003: 467), Carstairs-McCarthy (2010: 51), Enger (2013: 16, 19). On this point, Bowern's claim makes the discussion empirical. She sees very little evidence for change which operates on morphology alone. According to the morphomic tradition, by contrast, new independently morphological patterns can arise, there can arise new "indexical" or "intra-morphological" relations of no use to anything outside of morphology, such as to imply what another element in the paradigm may look like. For Romance, Maiden (2016a, b, 2018 and elsewhere) has presented many examples. The L-pattern presented in Section 2.1, Table 1, for example, is exactly this.

In the following section (4), we look at Scandinavian examples that cast further doubt upon Bowern's claim.

4. Some examples from Scandinavian

We shall now look at ten cases where it may be useful to talk of morphomic patterns arising, examples that also indicate that Bowern's claim is misguided. Unlike many of the Romance examples of morphomic patterns in the literature, my examples are mainly affixal, but this does not reflect any theoretical point; rather, I have just taken my examples where I could find them. Recall the definition of morphemes from 2.1 above: They are patterns that cannot be totally accounted for by other components than (inflectional) morphology.

In several of the case studies, we find a change toward phonological motivation for inflection class; a tendency to assign inflection class on the basis of the shape of the relevant words (or stems). While this tendency for "extra-inflectional" motivation to develop is in line with Wurzel (1984), it is, importantly, absolutely not the case that the changes below can be said to be phonologically motivated. Also, in several of the cases, the tendency is not 100%.

In all the tables below, broad or phonemic transcription is used. Long vowel is marked by a colon, and vowel length (not consonant length) is taken to be distinctive (see e.g. Kristoffersen 1992, 2000). Word tone (also called toneme), marked by 1/2, is only given when relevant for the purposes of this paper, which means it is not given for monosyllables, as it is not morphologically relevant there. Also, word tone is not given for Old Norse, since that is not relevant for my purpose.

4.1 A new inflection class in Norwegian, Swedish and Faroese

In the description of Old Norse (also referred to as Old Icelandic-Norwegian or Old West Nordic, the idealized language system supposedly spoken in Norway, Iceland and the Faroe Isles around 1200), it is traditional to group *kasta* 'throw' together with *ná* 'reach', thus claiming that the two inflect identically, as in Modern Icelandic and Danish. For Modern Norwegian, Swedish and Faroese, by contrast, the tradition posits two classes, thus saying that the two inflect differently. Compare Table 2.

Table 2. New inflection class for verbs, innovation in boldface (see further Dammel 2011: Chapter 3.3.1)

Gloss	INF	IMP	PRS. 3SG.IND	PAST	PST.PTCP.M	
throw	kasta	kast	kastar	kastaði	kastaðr	Old Norse
reach	ná	ná	nár	náði	náðr	Old Norse*
				▼	▼	
throw	2kaste	kast	2kaster	2kaste	2kaste	(East Nw.)
reach	no:	no:	no:r	2no**dde**	no**dd**	(East Nw.)

* In Old Norse, the acute indicates length, so an *á* is a long *a* (just like *ú* is a long *u* etc).

The rise of the new *no:*-class is partly triggered by phonological changes, a loss of the consonant /ð/ (cf. Dammel 2011: 225–239). However, the new class is clearly not completely motivated by this innovation. In East Norwegian, for example, it is perfectly possible from the phonological point of view to mark past tense merely by means of a vowel, as the verb 'throw' shows in Table 2.[6] The new class is largely motivated by the extra-inflectional property of ending in a long stressed vowel in the infinitive and ending in a long vowel + /r/ in the present. Yet crucially, the motivation is not complete. There are also strong verbs that have such a shape – e.g. /fo:/, *få* 'get', the present tense of which is /fo:r/, past tense /fik/ or /fek/. There is an indexical relation here (cf. 2.2). The suffix /r/ after a long vowel has an intra-morphological meaning; it "says" "the stem on my left is (a) certainly monosyllabic, ending in a stressed vowel and (b) probably a weak verb". The change described in Table 2, then, counts as a morphomic pattern arising. There is certainly motivation (in terms of phonological shape) for the new class, but the motivation is not complete, and the process behind the new class is morphological. There is no phonological reason why the verb meaning 'reach' did not start to inflect like 'throw', i.e. why East Norwegian did not get /no:e/ as the past tense of /no:/. In some dialects of East Norwegian, the past tense of the irregular verb /dø:/ 'die' is in fact /dø:e/.

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6. It is simplistic, here and elsewhere, to talk of 'East Norwegian' as if it were a monolithic entity, but for present purposes, this simplification does no harm.

The above may in fact illustrate one of the difficulties in identifying morphomic patterns: All other factors than the morphological ones have to be excluded, and it may be hard to identify and check them all (cf. further 5.1 below and Maiden 2016a: 55).

Dammel (2011) points out that if inflection classes were redundant, one might expect them to be exposed only to *Abbau*, i.e., loss. Certainly, that happens, but other alternatives can also happen. Inflection classes can be exposed to *Ausbau*, i.e. they can be built, as with the new class we have just witnessed, or they can be exposed to *Umbau*, re-structuring, as in our next example. Both *Umbau* and *Ausbau* qualify as morphomic changes, involving inflectional classes – purely morphological phenomena par excellence.

4.2 Trying to copy your new neighbor

As noted in Section 2.2 above, we need not agree with Aronoff's rhetoric when he calls morphomic patterns "useless", since they may be very useful *within* morphology. There may also be semiotic reasons for the perseverance of morphomic patterns, cf. Section 5.3.3. A third reason why we may refrain from the label "useless" is that inflection is also about following the rules, sociolinguistically; the phatic function of language is not unimportant. The fact that there is an indexical aspect to allomorphy – also sociolinguistically – is brought out by the example we shall look at now; cf. Table 3.

Table 3. Change in suffixes in Trøgstad, Askim, Spydeberg; obviously morphological innovation in boldface. M1 is the most type-frequent inflection class for masculines, F1 the most type-frequent inflection class for feminines

		INDF.PL	DEF.PL	
Romerike	M1	2kni:ver	2kni:va	knife
(from ON by sound law)	F1	2greiner	2greinene	branch
	F2	2jenter	2jentene	girl
("Central") Østfold	M1	2kni:vær	2kni:væne	knife
(from ON by sound law)	F1	2greiner	2greinene	branch
	F2	2jenter	2jentene	girl
Trøgstad, Askim, Spydeberg	M1	2kni:vær	2kni:væne	knife
(TAS)	F1	2grein**ær**	2grein**æne**	branch
	F2	2jent**ær**	2jent**æne**	girl

Romerike and "Central" Østfold are fairly large dialect areas, and the patterns developed there are, on this point, presumably due to different regular phonological changes ("sound laws") after Old Norse. The Trøgstad, Askim, Spydeberg

(henceforth "TAS") area belongs to Østfold these days, but it is fairly peripheral within Østfold. In early Norwegian history, Trøgstad and Askim, at least, belonged to the Romerike area, administratively (Hoff 1946, 1965: 326). Hoff assumes that they had Romerike dialect, and so had the suffix /er/ in both masculines and feminines, in the indefinite plural. After the administrative reallocation, speakers will have noted that their new closest neighbors, in Østfold, often had the vowel /æ/ in suffixes. That is alien and rather striking for Romerike speakers. The next step, for TAS speakers who wish to conform to their new neighbors, is to take over /ær/. But they "overdo" this by introducing /ær/ into the feminine. The change is thus a hypercorrection, according to Hoff; speakers from "Central" Østfold do not say /jentær/ or /greinær/.

"Hypercorrection" may be an unfortunate term, perhaps, since it has a some-what normative feel. An alternative label might be "syncretism", in the diachronic sense of this word (as we are describing a change). Anyway, a morphological over-generalization may seem the perfect example for a morphomic change, but in this case, the purely morphological change does have a social motivation – but many (perhaps all) linguistic changes do have a social aspect as well. In other words: While the change clearly is purely morphological – one affix is replaced by an-other – this is not entirely independent morphology; there is a variation side to it. Sociolinguistic variation may well be relevant for morphomic patterns (see also Meul 2013 and Smith 2011). As noted in Section 2.1, morphomic patterns may have partly extra-inflectional motivation.

Anyway, while the feminines in TAS are boldfaced in Table 3, since they cannot be accounted for by "sound law", it turns out that by Hoff's account, the masculines are not due to regular phonological development, either. If the speakers of the TAS dialect were not aware of both the Romerike dialect and the Central Østfold dialect, there would be little reason for them to change the feminines in this way. Thus, Hoff's account explains why this change has happened where it has.[7]

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7.   An alternative account (entertained, for example, by Endresen 1990: 95) is that at first, the TAS dialect did have the Østfold pattern in both masculines and feminines in the plural, but then, the suffixes for feminine nouns in the plural were changed because of the contact with Romerike. One way of reacting towards your neighbor is to begin to speak more differently – to choose divergence. In Norwegian dialectology, the traditional term is *nabo-opposisjon*, "neigh-bor opposition" (Larsen 1917). On this account, TAS has been just like Østfold, but the speakers have hyper-corrected in opposition to Romerike.

In the particular case at hand, there are concrete arguments supporting Hoff's convergence analysis. In TAS, we find that the 'regular' comparative of adjectives ends in /ære/, e.g. /ri:kære/ 'richer'. That could fit either of the accounts. However, the superlative ends in /este/; 'richest' is /ri:kest/, and not *ri:kæst/. This is consistent only with Hoff's hypothesis that we are dealing with former Romerike dialects, as Romerike has /ri:kere/, /ri:keste/, Central Østfold /ri:kære/, /ri:kæst/ (or /ri:kast/).

In all the dialects in Table 3, gender is neutralized in the plural (as in German). In Scandinavian, as in most German dialects, but unlike Standard German, the basic distinction tends to be between neuters on the one hand and non-neuters on the other (Kürschner 2016: 44, 54). Once /ær/ is generalized in Trøgstad, Askim, Spydeberg, the noun suffix /ær/ has the intra-morphological meaning "the stem on my left is not a neuter", "the stem on my left has word tone 2" and then, a meaning that is not intra-morphological, namely "the speaker is not from Romerike, but from Østfold".

In TAS, masculines and feminines inflect in just the same way, after the change, in the indefinite plural, as they do in Romerike, but not in Østfold. Thus, there is a sociolinguistic side even to such an independently morphological unit as inflection class affixes. The change respects the fact that the distinction between the M1 class and the F1 class is less important than that between them both and the neuters. That is morphology.

4.3   Meat from shoulders in Meldal

In the dialect of Meldal, Trøndelag, Norway, the noun *bog* /buːg/ 'shoulder; forelimb; meat from this part of the animal' has the definite plural form /¹bøːgen/ – with word tone 1, Umlaut (vowel change) and the suffix /en/. Thus, in the plural in this dialect today, *bog* inflects like the feminine *bok* 'book', the definite plural of which is /¹bøːken/ (again with word tone 1, Umlaut and the suffix /en/). Interestingly, this is not what we expect by regular phonological development. The Old Norse plural of *bógr* was *bǿgir*, with Umlaut + *-ir*, compare *sunr* 'son' – *synir*. By regular phonological development, this "ought to have" resulted in word tone 2; word tone 1 in definite plurals is not found in Modern Norwegian if the word had a suffix like *-ir* in Old Norse. Compare the definite plural of 'son', Meldal /²søniɲ/, which also has Umlaut, but which has word tone 2 and a different suffix, viz. /iɲ/. Thus, both word tone and suffix have been changed for *bog*. The Umlaut has remained constant. It therefore seems reasonable to assume that the plural Umlaut has triggered the change of suffix and word tone. Suffix and word tone of *bog* today conform to the inflection class characterized by Umlaut, the so-called 'root nouns'.

While I have used Meldal to illustrate, this development of *bog* is not unique to that dialect (see Beito 1954: 34). Nor is the development unique to *bog*, even if it admittedly is rare. Besides *bog*, Beito (1954: 34) lists six other examples from Norwegian.

Be that as it may, the inflection of the noun is changed, for no reason outside morphology, thus going counter to Bowern's claim. (See 4.4.3 for further implications.)

4.4   Strengthening of inflection class in Swedish and in Østfold

We now consider two examples of *Umbau* 'restructuring', in Dammel's (2011) terminology, of inflection classes. In Enger's (2014) terms, these are examples of inflection classes being strengthened. These are clearly cases of independently morphological innovations – inflection classes are not relevant to any other component of grammar.

4.4.1   *Swedish*

The extension of a specific word tone to an inflection class for "standard" Swedish verbs, shown in Table 4b below, is both strengthening of an indexical relation and of a class that already exists.

Table 4a. Weak inflection classes I and II + strong class for verbs in Grenland Norwegian

Gloss	INFINITIVE	PRESENT	PAST	PST.PTCP	
throw	2kaste	2kastær	2kasta	2kasta	Weak I
think	2teŋke	2teŋker	2teŋte	teŋt	Weak IIa
build	2byge	2byger	2bygde	bygd	Weak IIb
scream	2skri:ke	1skri:ker	skreik	2skri:ki	Strong

Table 4b. Inflection class Weak II "strengthened" through word tone change in Swedish (innovation in boldface, see further Enger 2014)

Gloss	INFINITIVE	PRESENT	PAST	PST.PTCP	
throw	2kasta	2kastar	2kastade	2kastat	Weak I
think	2täŋka	**1**täŋker	2täŋkte	täŋkt	Weak IIa
build	2byga	**1**byger	2bygde	bygd	Weak IIb
scream	2skri:ka	1skri:ker	skre:k	2skri:kit	Strong

The presentation in Table 4 is completely a-historical; standard Swedish has certainly not developed from Grenland Norwegian. However, the point is that Grenland Norwegian illustrates an older stage, historically, a stage in which word tone 2 in the present tense correlates with the verb being weak. In Swedish, those verbs that have -*te* (or -*de*) in the past tense, e.g. *tänka* 'think', *bygga* 'build' have had their word tone changed. They now stand out even more from other weak verbs. Thus, word tone 1 has been better aligned with the suffix /er/. In Grenland, the two do not always correlate; in "standard" Swedish, they do.[8]

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8.   The reason for focusing on 'standard' Swedish here is that in Finland Swedish, word tone is a very different issue.

This change represents an autonomously morphological innovation (see further Enger 2014). There is no phonological reason for the Swedish change. An existing morphemic pattern is re-inforced, somewhat like Romance cases studied by Maiden (e.g. 1992, 2005, 2018).

4.4.2   *Østfold Norwegian: Trøgstad, Askim, Spydeberg*

The TAS dialects, discussed also in 4.2 above, are spoken in Østfold, not far from the Swedish border. They represent the inverse change of Table 4b, as it were. In Swedish, the alignment between the suffix /er/ and word tone 1 in the present was improved, in TAS, the alignment between the suffix /ær/ and word tone 2 has been improved, as shown in Table 5a & b.

Table 5a.   Weak inflection classes I and II + strong class for verbs in Grenland Norwegian

Gloss	INF	PRESENT	PAST	PST.PTCP		
throw	2kaste	2kastær	2kasta	2kasta		Weak I
know	2çene	2çener	2çente	çent		Weak II
scream	2skri:ke	1skri:ker	skreik	2skri:ki		Strong

Table 5b.   Inflection class "strengthened" through spread of suffix /ær/ in Trøgstad, Askim, Spydeberg (= TAS), innovation in boldface

Gloss	INF	PRESENT	PAST	PST.PTCP		
throw	2kaste	2kastær	2kasta	2kasta	TAS	Weak I
know	2çene	2çen**ær**	2çente	çent	TAS	Weak II
scream	2skri:ke	1skri:ker	skreik	2skri:ki	TAS	Strong

The description is again a-historical. TAS has not developed from the Grenland dialect; again, it is just that the Grenland dialect represents an older stage, historically. By the innovation, the suffix /ær/ is linked more tightly to word tone 2 in TAS (cf. also Hoff 1946: 275 and 341).

4.4.3   *Theoretical implications of the TAS strengthening and the Meldal change*

From a theoretical point of view, the change in Table 5b may be even more interesting than the one described in Table 4b. The reason is as follows. In line with a reductionist and non-morphemic attitude towards morphology, Bye & Svenonius (2012) argue that non-concatenative morphology is an epiphenomenon. They wish to reduce non-concatenative phenomena to phonology; putatively syntactic affixes are the 'real' markers. This is understandable from a non-morphemic point of view; one might wish to reduce all the seemingly 'wild and wacky' ways in which morphology can be expressed. Unfortunately, the TAS change then

becomes problematic, because the affix is changed so as to conform to the word tone (toneme). In other words, the allegedly epiphenomenal tail of non-affixal inflection wags the putative dog of affixal inflection.[9]

The Meldal change outlined in 4.3 supports this conclusion. In the case of *bog*, the plural affix is changed on the basis of Umlaut. This also goes against the idea that that non-concatenative morphology is an epiphenomenon. If non-concatenative morphology really were epiphenomenal, we would expect affixes to be stable and Umlaut to change. Thus, for the assumption that non-concatenative morphology is an epiphenomenon, the case of *bog* is another case of the proverbial tail (or perhaps shoulder?) wagging the theoretical dog.[10]

So both affix, word tone and (in cases we have not examined here, but which are very common in Scandinavian) Umlaut can be changed. This supports the picture Carstairs-McCarthy (e.g. 2001, 2010) has painted of morphology as characterized by a 'belt-and-braces' strategy: Sometimes, the belt is used, the braces neglected, sometimes it is the other way around, sometimes, both are used, cf. Section 6.3 below.

As noted, the cases from TAS and Meldal indicate that affixes can count for less than non-affixal inflection, and thus that a purely affixal model of morphology will not do (cf. also Wurzel 1989; Anderson 1992, 2017; Carstairs-McCarthy 1994, 2010; Stump 2001; Blevins 2016, for extensive arguments).

There is another problem with the purely affixal model, at least in the way it is devised by Bye & Svenonius. Anderson (2017: 11), who sees a tendency for syntacticians and phonologists to deny the independence of morphology (cf. Section 2 above), argues that "the 'phonological' representations and adjustments" that Bye & Svenonius (2012) assume "are so abstract as to be unrecognizable as such" (compare also footnote 9). This argument is reminiscent of the criticism set forward by Lass (1984: 214) against an analysis framed within what he called "Orthodox Generative Phonology": "the 'phonological solution' is really a fake".

Criticizing morphomic approaches, Bermúdez-Otero & Luís (2016: 319–329) argue that there is a severe diagnostic problem for morphomes. Hopefully, the preceding paragraphs show why this argument runs the risk of being right by definition: For decades, linguists have not agreed upon what phenomena should be

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9. A possible defense for the account proposed by Bye & Svenonius might be to attempt to analyze word tone as purely phonological. The problem is that Norwegian displays minimal pairs contrasted only by word tone, such as e.g. /2bokser/ 'pugilist' vs. /1bokser/ 'boxer dog'; /2bry:ter/ '(noun) wrestler; switch' vs. /1bry:ter/ '(verb) wrestles; breaks'. To label these differences 'purely phonological' deprives the label of content, in my view.

10. For further information on the interaction between word tone and inflectional system, which indicates that word tone relates to the inflectional system, see e.g. Kristoffersen (2000).

treated as morphological. In this respect, the discussion over morphemes does not represent anything new whatsoever. It follows that there is also a severe diagnostic problem for many of the *alternative* analyses, including those framed in non-morphomic terms, cf. Anderson's skepticism towards Bye & Svenonius above (see also Section 5.3.2).

Furthermore, the skepticism towards morphomic analyses has been especially clear among scholars that prefer morpheme-based rather than word-based approaches (as noted also by Bermúdez-Otero & Luís 2016). It then becomes relevant that a "severe diagnostic problem" clearly holds for the unit "morpheme". My claim is not that there necessarily is anything objectionable with the morpheme as such. The problem is rather that the morpheme has been defined in a number of very different ways (see e.g. Mugdan 1986; Matthews 1993; Carstairs-McCarthy 2005, and Blevins 2016, who all document this). For that reason alone, morphemes should not be allowed to "enter linguistic theory unquestioned" (cf. Zingler 2017: 88). More seriously, in at least some currently influential frameworks, such as versions of Distributed Morphology, the morpheme is defined practically vacuously, as an "abstract syntactic unit" (cf. criticism by e.g., Anderson 1992; Carstairs-McCarthy 1994; Stump 2001; Blevins 2016). This is a far cry from the "empirically corrigible" ideal that Bermúdez-Otero & Luís (2016) advocate. As argued in Section 5.1 below, the important point for our working concepts is that it should be possible to decide whether a particular phenomenon P qualifies as an example of term T or not. We must be sure when to use T. Given a definition of the morpheme as an 'abstract syntactic unit', such questions become, I submit, a matter of the analyst's convenience. The term is simply not sufficiently well-defined.[11]

4.5   Neuters in transition

We now turn to the neuters.

4.5.1   *A new inflection class for neuters in East Norwegian*
For bisyllabic neuters, a new inflection class arises in East Norwegian. A new suffix has been introduced into the indefinite plural of some bisyllabic neuters, exemplified by the nouns 'fence' and 'ditch', compare Table 6.

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11. At this point, a reviewer would like to see my definition of 'morpheme', but since I do not use the term in my own analyses, I abstain from a precise definition. To my mind, an important point is that morpheme-based approaches – at least broadly characterized – involve analyzing all morphology as somehow concatenative, equating affixes and stems, insisting that the grammatical characteristics of a word be identical to its segments, and – often, but not necessarily – equating morphology with syntax.

Table 6a. Inflection class for neuters in Old Norse

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL
house	hús	húsit	hús	húsin
table	borð	borðit	borð	borðin
fence	gerði	gerðit	gerði	gerðin
ditch	díki	díkit	díki	díkin

Table 6b. New inflection class for neuters in East Norwegian (see also Enger 2014)

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL
house	hʉ:s	1hʉ:se	hʉ:s	2hʉ:sa
table	bu:ʈ	1bu:ʈe	bu:ʈ	2bu:ʈa
fence	2jæ:ʈe	2jæ:ʈe	2jæ:ʈe**r**	2jæ:ʈa
ditch	2di:ke	2di:ke	2di:ke**r**	2di:ka

This example shows independent change, operating on morphology alone – despite Bowern's claim. The new suffix in /2jæ:ʈe**r**/, /2di:ke**r**/ has as part of its intra-morphological meaning, its *signatum* (cf. Section 2.2), that "the neuter stem on my left ends in an unstressed /e/ in the INDF.SG".

As pointed out by Papazian (2002), it would have seemed simpler, *a priori,* just to keep the zero suffix for the inflection of all neuters. The change in such neuters as /2jæ:ʈe**r**/, /2di:ke**r**/ is usually seen as analogy from a central inflection class of feminines, on the grounds of comparative evidence from other dialects.[12] This change "operates on morphology alone", in my view.

One possible objection, however, goes as follows: The change brings out the shape of the noun, more specifically whether it is bi- or monosyllabic. So is not this change phonologically motivated? My answer would be 'no'. Firstly, there would have been nothing phonologically amiss with the plural /jæ:ʈe/, compare Papazian's comment above. Secondly, the change brings out more clearly the difference between a noun as 'fence' in the singular and in the plural. That is clearly morphology.

Another more reasonable objection at this stage might be that 'fence' and 'house' do not have to be considered two different inflection classes, since the distribution between the two seems predictable on the basis of shape. (See Carstairs 1987: 50ff and Baerman 2016 for further justification of this line of reasoning.) Yet

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12. This may be unexpected, for in many Norwegian dialects, the suffix traditionally associated with masculine nouns tends to "oust" other suffixes (see e.g. Enger 2011: 191–192 for examples and references). The reason why the case at hand differs is presumably that the typical weak noun, which is bisyllabic in the indefinite singular, is feminine. In a sense, the shape or inflection class of the noun wins over a syntactic property, thereby testifying to the relative autonomy of morphology.

this does not detract from the basic point: The suffix /r/ is introduced for purely morphological reasons (see also Enger 2014: 163–70 for discussion).

4.5.2   *A new class of neuters in Swedish*

Changing the indefinite plural of polysyllabic neuters is not restricted to East Norwegian. A number of similar changes are found in Swedish, cf. Kågerman (1985) (and in Danish, which I shall leave out of the discussion). Let us first look at 'standard' Swedish, compare Table 7:

Table 7. New neuter suffix in varieties of Swedish (see further Kågerman 1985)

	Gloss	**INDF.SG**	**DEF.SG**	**INDF.PL**	**DEF.PL**
(Sound law)	ditch	2di:ke	2di:ke	2di:ke	2di:ken
Morphological change	ditch	2di:ke	2di:ke	2di:ke**n**	2di:ken

This innovation targets the same nouns as does the introduction of /r/ in East Norwegian, but it has also targeted other neuters, more specifically those monosyllabic neuters that end in a long vowel, compare *bi* 'bee', the indefinite plural of which is now *bin*. While East Norwegian /r/ 'says' "the neuter on my left ends in an unstressed /e/", Swedish /n/, in the indefinite plural, has as its intra-morphological meaning that "the neuter on my left ends in an unstressed /e/ or a stressed vowel"; the choice between the two alternatives is straightforward, however, since the former presupposes an unstressed final syllable, the latter a stressed one.

The Swedish indefinite plural suffix /n/ in Table 7 is thus somewhat different from East Norwegian /r/ in Table 6b, and the new /n/ in /di:ken/ is not due to analogy with the feminines, in the way /r/ is in East Norwegian. We cannot go into all the historical details here, but apparently, the new indefinite plural suffix /n/ has developed out of the definite plural suffix in the neuters in the first place. Interestingly, indefinite plural /en/ was found for a while also on neuters like *hus* 'house'. The Österbotten dialect in Finland still represents this stage; *hus* and *dike* inflect in the same way there, in contrast to Table 6b. In Nyland in Finland, as in the standard, the two have been differentiated, but only in the indefinite plural.

The Swedish change is thus particularly interesting, in that speakers of a number of dialects seem to "choose" to keep *hus* and *dike* apart after a period of vacillation in which both *husen* and *diken* could be found as indefinite plurals.

The end result in Table 7 is rather like that of Table 6b, in that a new indefinite plural affix has come up. In both cases, bisyllabic neuters like *dike* have acquired a new suffix in the indefinite plural, one that sets them apart from monosyllabic neuters like *hus*. A new inflectional affix comes up; one that only serves to indicate the shape of the noun. That may perhaps seem "useless" outside of morphology (cf.

2.2), but it does, for example, help speakers who do not know the relevant noun in advance, if they should meet it for the first time in the indefinite plural.

The fact that speakers could arrive at this result by different ways testifies to the significance of the process, which, again, seems to constitute clear evidence of change operating on morphology alone.

4.5.3   *Inflectional parsimony*

We shall now turn to a somewhat different change concerning the neuters in the Oslo dialect. In the Oslo dialect around 1900, as described by Larsen (1907), there was considerable variation in the neuters. A lot of this variation has later been lost, see Table 8a & b.

Note that, for expository reasons, word tones are kept entirely out of the tables and text in this one section. Only the affixes need concern us in this section, and the tones would lead to unnecessary complication.

Table 8a. Neuters in the Oslo dialect around 1900 (see further Larsen 1907)

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL
house	hʉːs	hʉːse	hʉːs	hʉːsa
			hʉːser	hʉːsene
table	buːɽ	buːɽe	buːɽ	buːɽa
			buːɽer	buːɽene
fence	jæːɽe	jæːɽe	jæːɽer	jæːɽa
				jæːɽene
ditch	diːke	diːke	diːker	diːka
				dikːene

Table 8b. Change in the neuters in Oslo, innovation in boldface

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL
house	hʉːs	hʉːse	hʉːs**Ø**	hʉːsa
table	buːɽ	buːɽe	buːɽ**Ø**	buːɽa
fence	jæːɽe	jæːɽe	jæːɽer	jæːɽene
ditch	diːke	diːke	diːker	dikːene

The background for the variation in the plural cells in Table 8a – /hʉːs/ alongside /hʉːser/, /buːɽa/ alongside /buːɽene/ etc. – is a case of dialect mixture (Larsen 1907); Oslo is a place where different varieties have met. For historical reasons, there has been a period in which there were two possible alternatives for each cell in the plural.

The norm for paradigms is for there to be only one form in each cell; i.e. "inflexional parsimony" (Carstairs 1987: 31). After Larsen's day, i.e. around 1900,

inflexional parsimony has been largely restored, some variation has been eliminated. A priori, the simplest way to do so would be to choose one set of suffixes for all the neuters. But that is not what speakers have done. Rather, the suffixes have been re-shuffled, so that one set signals a bisyllabic stem, another a monosyllabic – thereby arriving at a system similar to that in Tables 6 and 7. This may seem useless, for anything outside of morphology, but then, "affixes can 'forage', as it were, for syntagmatic or paradigmatic factors that may serve to differentiate them from their potential rivals", as Carstairs-McCarthy (2001: 10) points out. Again, we are witnessing an "autonomously morphological innovation".

4.6   Body part nouns

4.6.1   *Ears and eyes*
Even for a speaker of East Norwegian like myself who assigns /ene/ to most bisyllabic neuters, and says /2jæːɽene/ 'the fences', /2dik:ene/ 'the ditches', as in Table 8b, there are two bisyllabic neuters that retain the old suffix /a/. These are the words meaning 'eye' and 'ear',[13] compare Table 9:

Table 9. Ears and eyes are relics in Oslo (cf. Table 8 for background; underlined: Relics, see further Enger 2012)

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL
fence	jæːɽe	2jæːɽe	2jæːɽer	2jæːɽene
ditch	diːke	2diːke	2diːker	2dik:ene
eye	æve	2æve	2æver	2æva
ear	øːre	2øːre	2øːrer	2øːra

Dammel's (2011) term *Kleinstklasse* 'minimal class' seems well-suited for the neuters 'eye' and 'ear' in Table 9, for they are the only two that inflect in this way.

   In Old Norse, there were roughly a dozen bisyllabic neuters, sometimes called "weak", standing out from the rest. Two of them meant exactly 'eye' and 'ear'. They were irregular in Old Norse as well, but in an entirely different way.

   For these neuters, new irregularity is arising – not because anything happens to them, but because all other bisyllabic neuters change. In some other varieties of Norwegian, in the West, the "opposite" is happening: the suffix /ene/ is introduced only or mainly for two neuters, 'eye' and 'ear' (cf. Enger 2012: 97; Skjekkeland

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13. In the terms of Wurzel (1984), while all other neuters have changed to *Grundformflexion* (base-form inflection), then, these two remain with *Stammflexion* (stem inflection).

2005). That is an innovation, targeting – at least at first – only those two nouns. It is unsurprising, cross-linguistically, to see that names of body parts occurring in pairs or sets get irregular morphology (see also 4.6.2 and Kürschner 2008). Interestingly, there is no sign of other so-called weak neuters from Old Norse being treated this way in Oslo. Yet there are irregularities arising in partly the same place over again, useless though it may seem. The outcome is "mixed inflection" or "heteroclisis" (for which see further Stump 2006; Maiden 2009) arising, in that 'eye' and 'ear' have the same affix as 'fence' in the indefinite plural, but the same affix as 'house' in the definite plural. Clearly, this is independent morphology.

4.6.2   *Teeth and hands*

Another innovation, pertaining to the nouns for 'tooth' and 'hand', is also relevant at this stage. Both are old feminines, and both have had vowel change (Umlaut) in the plural, which is fairly rare for Norwegian nouns. And they both get a new, "mixed" or heteroclitic inflection pattern, shown in Table 10:

Table 10. Teeth and hands change (Oslo, Romerike, see further Enger 2012; Odden 2013)

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL
hand	han	1hana	1hener	1hene
tooth	tan	1tana	1tener	1tene
			▼	
hand	han	1hana	1hener	1hen**a**
tooth	tan	1tana	1tener	1ten**a**

The nouns meaning 'hand' and 'tooth' have innovated in the definite plural. This innovation is fairly recent, and it is not a change towards the prestige norm, directly, or indirectly, unlike a number of other changes in East Norwegian these days, cf. e.g. Røyneland (2009). The first thing to note about the new forms is that previously /a/ in the definite plural did not combine with feminine stems in these dialects. This suffix used to be restricted to masculines and neuters, cf. Table 11:

Table 11. "Regular" inflection in Romerike and Oslo

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL	
knife	kni:v	1kni:ven	2kni:ver	2kni:va	Monosyl M1
saw	sa:g	1sa:ga	2sa:ger	2sa:gene	Monosyl F1
country	lan	1lane	lan	1lana	Monosyl N1

Secondly, the suffix /a/ and vowel change did not use to co-occur, compare Table 12:

Table 12. Umlaut nouns as they used to be in Romerike and Oslo (Hoff 1968; Larsen 1907)

Gloss	INDF.SG	DEF.SG	INDF.PL	DEF.PL	
'man'	man	1manen	men	1mene	Monosyl M
'farmer'	bune	2bunen	1bøner	1bøne	
'duck'	an	1ana	1ener	1ene	Monosyl F
beach	stran	1strana	1strener	1strene	

In terms of intra-morphological meaning (cf. Section 2), then, the suffix /a/ in the definite plural used to signal "the stem on my left is either a masculine or a neuter [in the singular], and does not have Umlaut". That was the classical East Norwegian system. On both points, /tena/ and /hena/ represent a change.[14]

There is a link here to the change affecting the nouns 'eye' and 'ear'. The suffix /a/ is found, unexpectedly, in both cases. *Øre, øye* 'ear, eye' stand out by not having changed the definite plural, *tann, hand* 'tooth, hand' stand out by having changed it, so the paths to irregularity or the establishment of a *Kleinstklasse* are different. Irregularity in the case of high frequency may be relevant (cf. e.g. Nübling 2000, 2008). Also, teeth, eyes and ears are fairly often referred to in the plural, not the singular; local markedness (Tiersma 1982) may also be relevant. Their status as body part nouns may also be relevant (see e.g. Kürschner 2008: 282f, 2016). We shall leave this issue open.

Now, in these dialects, /a/ is the old suffix for both masculines and neuters in the definite plural, cf. Table 11. A traditional idea in the study of Scandinavian is, however, that there is a special link between neuter and collectivity. It makes sense for the neuter suffix, then, to spread to teeth, hands and eyes.[15] Speakers could have regularized differently. They could have let 'hand, tooth' join feminines without vowel change, of the *sag* type in Table 11, but they did not. Perhaps part of the reason was that word tone 1 in indefinite plural was "signaling" that "this guy is different". Again, we are dealing with independent, morphological change.

4.7   Summing up Section 4

The patterns we have examined qualify as morphomic, since they cannot be accounted for *totally* by other components than morphology. Ten examples of morphomic patterns arising or being strengthened is not an overwhelming number,

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14. Perhaps the change for 'tooth' and 'hand' may have to do with an ongoing 'weakening' of the feminine gender too, but this suggestion does not invalidate the account given above.

15. The change goes further, at least for some speakers, but this issue cannot be pursued here.

admittedly. However, if these examples can be brought forward so easily even for relatively "impoverished" inflectional systems such as Mainland Scandinavian, the claim that there is "very little evidence for change which operates on morphology alone" (Bowern 2015: 249) is at least partly wrong.

5.   Some meta-objections and how to deal with them

In Section 4, I have presented Scandinavian case studies indicating some autonomy, i.e. independence, for morphology. These case studies have indicated rather clearly that Bowern's objections against the morphomic approach are not entirely correct. We shall now turn to objections of a less empirical nature, stemming from Bermúdez-Otero & Luís (2016).

5.1   On white and black swans

It has been argued that the morphome may be a "wildcard" (Bermúdez-Otero 2013; Bermúdez-Otero & Luís 2016), problematic from the point of view of philosophy of science. This argument is inspired by a concern with falsification.

   Striving to find a demarcation criterion against pseudo-science, the philosopher Karl Popper emphasized the importance of strong, falsifiable hypotheses in science. The idea is that if a particular hypothesis entails no risks, then it probably is empty. Thus, "there are no black swans" is (at least in Northern Europe) a better candidate for a working hypothesis in science than "white swans exist", as the former is falsifiable; it is in danger if one black swan is found. By contrast, the latter is extremely hard to disconfirm but very easy to confirm, and thus similar to pseudo-scientific hypotheses found in astrology, according to Popper.

   Now, any evidence for morphomic patterns is negative (Aronoff 1994, 2012: 37). We call the Romance L-pattern in Figure 1 morphomic because there seems to be no "natural" motivation for it. Bermúdez-Otero & Luís (2016) imply that the willingness to accept such patterns has been like a hunt for white swans, in Popper's terms. However, a possible consequence of such strictness is that they also should be reluctant to accept inflection classes; according to Baerman (2016: 794), inflection classes "in the strict sense are what is left over". This would smack of untenable apriorism, as, to the best of my knowledge, there is not a single current morphological framework that does without *some* version of inflection classes.

   Aronoff (1994: 62–63) has made it quite clear himself that his morphomic level could not be disproved, so it is not really an empirical hypothesis. It is rather a concept, a part of a model. We do not only have theories and hypotheses in science,

we also have models and concepts, and the former two belong at a different level from the latter two, at least according to Popper (1972: 19). Saying that there may be such things as morphomic patterns is no worse than saying that there may be such things as subjects.[16] The crucial point is that it should be possible to point at X and say either "this is a morphomic pattern/syntactic subject" or "this is not a morphomic pattern/syntactic subject", cf. 4.4.3 above. The subject is not necessarily a useful entity for the description of all languages, and it is not dictated by communicative needs. The subject is "a purely syntactic unit", the relation to semantics is not straightforward, witness for example non-agentive subjects. (This is not to deny that the subject relates to other factors, such as semantic roles and information structure, for example.) Similarly, inflection classes are not useful in the description of all languages, they are not dictated by communicative needs, they are "purely morphological units", and even if they can relate to extra-inflectional factors (say, animacy), the relation is not straightforward.

5.2   Learnability

Bermúdez-Otero & Luís (2016) concede that there is evidence in favor of morphomic patterns when there is a many-to-many mapping between syntax/semantics on the one hand and phonology on the other. In such cases, morphology as an autonomous level of representation might conceivably mediate between syntax/semantics on the one hand and phonology on the other, thereby facilitating learnability, for example. However, Bermúdez-Otero & Luís (2016: 337) argue, "the morphomic-level claim raises learnability problems of its own. For example, what alerts learners to the existence of intermediate morphological representations in monovalent monomorphous patterns of exponence?" The question is, in other words, why posit morphology when the relation syntax/semantics-phonology is 1:1.

The authors do admit themselves that this objection could be raised for a number of other linguistic terms. For present purposes, we may also set aside the awkward question whether syntax/semantics somehow should count as one and the same.

For our purposes, it is more important to note that the question raised illustrates *exactly* that reductionism that morphologists have been trying to battle for decades – for example by highlighting morphomic patterns. Thereby, Bermúdez-Otero & Luís (2016) illustrate that the pursuit of morphomic patterns is really a hunt for black swans (Section 5.1) – not white ones. Finding morphomic patterns is to point out

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16. Admittedly, the subject is a controversial notion as well, but for reasons that are tangential to the point made here.

what another research program would prohibit, and it seems strange to object to this on aprioristic grounds.

Furthermore, the question Bermúdez-Otero & Luís (2016) raise is unlikely to bother speakers, even if it may bother the aesthetic instincts of linguists. The question asked seems to translate into the following: "Why would speakers postulate morphology unless they absolutely have to?" A somewhat banal, yet empirically well-substantiated answer is that speakers do postulate morphology even in a number of cases where the reason eludes linguists. For example, the German Umlaut uncontroversially starts out as one phonological rule. However, as Anderson (1992: 345) notes, "this rule shows a clear tendency to develop individual peculiarities in its various instantiating categories which argue for the presence of a number of distinct, category-specific rules of Umlaut." That is, one phonological rule ends up as many morphological ones. The diachronic process of morphologization happens quite frequently, even when a phonological analysis would seem obviously preferable to linguists (see e.g. Wurzel 1980; Lass 1984; Maiden 1991; Anderson 1992; Bybee 2001). Even if linguists are unable to say exactly what alerts speakers to morphology, it does not follow that speakers cannot be alert to morphology. More generally, redundancy is a salient characteristic of natural human languages, so the aprioristic assumption that redundancy has to be kept out of the grammar begs a number of questions (see e.g. Langacker 1987; Anderson 1992).

Speakers learn an enormous amount 'by rote', as witnessed by their vocabulary. Evidence for this is found also in variation. Speakers of dialect A will often notice some points on which dialect B is different (e.g. different qualities of vowels). It is certainly not obvious why speakers should bother to notice such a tremendous amount of detail – and yet they often do.[17] As shown in Section 4.2, speakers may even notice that speakers of another dialect have a kind of inflection they did not have themselves, and act in accordance with the observation. Saying that morphomes seem redundant, that they tax the memory for no good reason, is simply not a strong counter-argument.

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17. A reviewer raises an intriguing question (edited here): "So morphomic patterns can be recognized and acquired without being obviously regular or general – and without being part of any kind of UG, as is usual for large parts of morphology anyway. I am wondering, however, if some morphomic patterns actually reserve a place for morphology in (some version of) UG. Consider recurrent patterns of syncretism identified by the Surrey Morphology Group, for example." My response would be that cross-linguistically recurrent patterns of syncretism are motivated in a way that morphomes are not. Morphomes are typologically unique (cf. Maiden 2016a: 44) and therefore, morphomes are unlikely candidates for UG. (Of course, the status of UG is controversial, anyway; see e.g. Evans & Levinson 2009.)

5.3   "Taking morphology seriously"

5.3.1   *Reducing the heat by pouring oil on the fire?*
Somewhat reluctantly, Bermúdez-Otero & Luís (2016) concede the existence of morphomic patterns, but they emphasize some problems. They suggest (2016: 321) as an alternative the hypothesis of "Taking morphology seriously: In the absence of evidence to the contrary overt morphological derivation signals lexical semantic derivation"; telling us that this may be "an extremely valuable heuristic".

Bermúdez-Otero & Luís (2016) have suggested that it would be good to reduce the heat of the morpheme debate. Yet it is not obvious that the best way to do so is to imply that such scholars as Aronoff, Maiden and Loporcaro do not take morphology seriously. Furthermore, if "taking morphology seriously" means "denying morphology any autonomy whatsoever", one may wonder if the strategy really lives up to its name.

Apart from that, the approach is not quite new. Bermúdez-Otero & Luís (2016) note that Koontz-Garboden credits Kiparsky for this "general principle", but one might also mention e.g. Leiss (1997: 136), who takes it as an imperative of a functional grammar that "Die Form ist unbedingt ernst zu nehmen!" ["The form simply must be taken seriously!"].

Whatever the history of the idea, there are numerous examples in morphology where it is hard to believe that identity of form must reflect identity of meaning (cf. Maiden 2016a, or Stump's 1993 examples of instances where a "rule of referral" may be needed). Clearly, difference in form is usually indicative of difference in function (cf. Clark 1993); perfect synonymy is rare in the lexicon. However, similarity in form without similarity in function, i.e. homonymy, is another kettle of fish. In the lexicon, homonymy is not so rare, and it does not bother speakers terribly much, apparently (cf. Clark 1993: 70). Diachronically speaking, there is little evidence of homonymy avoidance in the lexicon (Sampson 2013). It is not obvious why grammar must be different. Beard (1995) has presented strong evidence that homonymy is actually more common for typically grammatical units such as affixes than for typically lexical units, words. In short: There is some homonymy in grammar. To postulate as a 'methodological heuristic' that this should not be the case may lead astray.

5.3.2   *Is the alternative really so promising?*
Every research program entails problems, and it is not always easy to know when to stop. If one insists on always finding subtle semantic reasons for morphomic patterns, one may end up with over-subtle accounts of motivation. The debate over gender in Dyirbal might illustrate this. Lakoff (1987), in his classic study *Women, Fire and Dangerous Things*, argues that there is a subtle, semantic and

culture-specific reason why words for women, fire and dangerous things are found in the same gender in Dyirbal. Without questioning the value this study has had for linguistic theory at large, Lakoff's claims appear to rest on uncertain grounds when it comes to the actual analysis of the gender system of Dyirbal. Plaster & Polinsky (2007) suggest a different analysis which is not so much based on subtle semantics, more on the actual form of the nouns and their frequency. They argue that

> Children show early acquisition of superordinate categories but are less likely to acquire more sophisticated and culture-specific semantic categorization at an early age [...]. Children are also known to pay attention to statistical and phonetic cues in their language in the first year of life [...].   (Plaster & Polinsky 2007: 38)

While Lakoff draws extensively on an earlier description of Dyirbal by Dixon, Dixon (2015: 43) objects against what he calls "Lakoff's misrepresentation", which he even calls "mangled". The lesson to take away is that we should beware of over-eager attempts at finding a "deep, subtle" motivation for patterns that should not be treated quite so subtly (cf. also Maiden 2018, Chapter 2).[18]

It is certainly fair to suggest alternatives to "morphomic" analyses. Yet it can hardly be accepted that those alternatives by definition are superior (cf. also Maiden 2016a: 55–56). For example, Bermúdez-Otero & Luís (2016) dismiss a morphomic analysis of the stress pattern for Spanish verbs on the grounds that it should rather be seen as underlyingly prespecified prosody. However, it is not obvious why "underlyingly prespecified prosody" has to be preferred over morphomic patterns or whether the analysis really is so different in nature. Both analyses resort to lexical storage, ultimately. In a number of other cases, it may also seem that the apparent alternative to a morphomic analysis is, on closer inspection, rather morphological itself; cf. Anderson's (2017) comments on Bye & Svenonius (2012) in Section 4.4.3 above.

It is worth repeating the original motivation for finding morphomic patterns. There has been an eagerness to reduce morphology to syntax and phonology, compare Section 4.4.3 above (and Aronoff 1994; Spencer & Zwicky 1998; Anderson 1992, 2017, to mention but a few critics). Against that background, morphomic patterns are those black swans that should not exist, they are irreducibly morphological. The morphomic literature is now so replete with these things that they can no longer plausibly be seen as anomalies. It is fair enough to respond, then, as follows: "Now that you have collected so many examples of black swans, what do

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18. See also Enger (2009) for a critical discussion of certain gender assignment rules suggested for German and Norwegian, some of which seem right, but others are simply too subtle. Also, there may well be (as Antje Dammel reminds me) gradual motivation or multiple motivation; such cases are perfectly compatible with a morphomic approach (cf. Section 2.1).

you want to do with them?" However, that question cannot reasonably be asked from somebody who does not accept the existence of black swans in the first place.

5.3.3   *Morphomic patterns need not be the end-point of analysis*

Furthermore, it is not the case that morphomic patterns necessarily are where we stop. It has been suggested that morphemes serve a semiotic function. The "curious paradox" rightly pointed out by Bowern (2015) (Section 3.1) had in fact already been addressed by Maiden (2013a), who has suggested that analogical leveling and retention of morphomic patterns are two sides of the same coin, as it were:

> Morphemes typically involve allomorphy, and it is well known that the historical fate of allomorphy is often for it to undergo levelling. It is also generally accepted that one of the determinants of levelling is a fundamentally semiotic principle commonly known as 'Humboldt's Universal', expressed by Vennemann (1978: 259) as: "Suppletion is undesirable, uniformity of linguistic symbolization is desirable: both roots and grammatical markers should be unique and constant". […] This principle predicts that levelling will be favoured […] by the universal preference for a maximally iconic relationship between meaning and form. *Such levelling and the diachronic coherent maintenance of morphemes are* in a complementary relationship; they are, *at bottom, manifestations of the same thing.* Both minimize the discrepancy between form and meaning, and make for a maximally predictable relationship between them. The diachronic maintenance of morphemes is the way in which that predictability is achieved if allomorphy is not levelled out. It might be seen as an alternative 'Plan B', if 'Plan A', namely levelling, should fail.
>
> (Maiden 2013a: 519, my emphasis)

There are similar ideas in previous literature. Hock (1991: 235–36) argues that *both* the well-known tendency for (root) allomorphy to be reduced (also known as Mánczak's second tendency), by leveling, *and* the tendency for more overt marking (Kuryłowicz's first law) are "important and equally valid, general tendencies in analogical change", "both […] motivated on the meaning side of language, but by different aspects of meaning".

Similarly, Carstairs-McCarthy (2010: 226) is "suggesting a precise and deep-rooted cognitive function for many and perhaps all the kinds of allomorphy that Aronoff draws attention to". He suggests that "morphology by itself" is ultimately grounded in phenomena relating to synonymy avoidance. Thus, it is not entirely fair to label morphomic patterns "wild cards". A further explanation is already on the table.[19]

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19. Admittedly, an over-zealous hunt for morphemes and autonomous morphology may lead us to neglect motivation (cf. e.g. Vincent 2013, Bermúdez-Otero & Luís 2016; Sameien et al. 2018). Following Nilsen (2012), Sameien et al. (2018) argue that there may be a partial semantic

5.4   Form-form relations

Morphomic patterns may be of the kind where form X implies form Y, for no terri-
bly good reason outside of morphology, such as the Romance L-pattern in Table 1,
for instance. The idea that such patterns may be found is not really surprising, and
a staunch defender of the idea, Maiden (2018, Chapter 2) actually calls morphemes
"banal". If the counter-claim really is that a morphological form cannot indicate the
form of other members in the paradigm, then we are dealing with an extreme form
of functionalism, one that many functional and cognitive linguists would reject out
of hand. For example, a range of functionalists studying language acquisition, from
Bates & Mac Whinney (1989) to Ragnhildstveit (2016), emphasize that learning a
language is not only about learning form-function relations, but also about learn-
ing form-form-relations. Indeed, Langacker (1987: 422) is completely unfazed by
arbitrary distributional classes; they do not violate his "Content Requirement", for
example. Wurzel (1984) emphasizes that there are two kinds of paradigm structure
conditions: Some are extra-inflectionally motivated (and therefore more stable, in
his view), some are not (and presumably less stable), but they are held together by
implications, which is better than nothing. I find it surprising that so many gener-
ative linguists should take what seems to me a much more extreme functionalist
view than these scholars. If there is one thing that seems to emerge very clearly from
recent morphological theorizing, it is that forms predict other forms, members
of paradigms predict other members (e.g. Ackerman & Malouf 2013; Bonami &
Beniamine 2016; Sims & Parker 2016).

5.5   What is autonomy?

The words "autonomous" and "autonomy" can mean many very different things
(cf. e.g. Croft 1995). In the last decades of the previous century, the "autonomy of
syntax" could be a standard argument for some version of nativism (e.g. Newmeyer
1983; Pinker 1994, even if, admittedly, both authors have later adopted a somewhat
different position). Functionalists and cognitivists, on the other hand, have always

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rationale behind the strong verb inflection in Norwegian. If we had been content just to label
the strong verb pattern "morphomic", this might have been overlooked. However, this semantic
motivation had been overlooked for a couple of centuries, so the neglect is hardly due primarily
to Aronoff's ideas about morphemes – and admitting partial semantic motivation does not
make the case entirely un-morphomic. While the morphomic tradition admittedly can trigger
a search for curiosities, it may also trigger interesting new analyses of phenomena we thought
we knew. For example, O'Neill (2013) argues that the semantic motivation behind the Spanish
imperfective indicative is incomplete.

been critical towards that view of autonomous syntax (e.g. Hudson 2010; Langacker 2008). For them, the idea of autonomous morphology should be less provocative, since no claims are made about UG or innateness; the emphasis is rather on the opposite (see e.g. Aronoff 2014, 2016). The claim is merely that morphology has patterns of its own; patterns neither fully reducible to nor fully predicted by anything outside of morphology. The idea of autonomous morphology can serve as a useful antidote against syntacto-centrism (Section 2.3).

Apart from that, this understanding of autonomy should not bother many linguists of whatever ilk. (Unless, of course, one really believes that morphology can be reduced to syntax and phonology.) Croft (1995: 526) argues that

> Structuralist [for Croft, this term includes "generative"] and functionalist theories share some important assumptions. One is the acceptance of the independence (arbitrariness) and systematicity of syntax within the grammar, and of the grammar with respect to external factors

Morphomes are simply morphological patterns without complete motivation from the outside of morphology (cf. Sections 2.1, 2.3 and 3.4).[20]

6.   Concluding remarks

6.1   Independently morphological innovations

The patterns we have examined in Section 4 qualify as morphomic, since they cannot be accounted for *totally* by other components than morphology. Ten examples of morphomic patterns arising or being strengthened is not an overwhelming number, admittedly. (Some linguists may argue that the new neuter suffixes /r/ and /n/ (4.5.1–4.5.2) can be reduced away; these classes are almost predictable on the basis of the shape of the nouns.) However, if these examples (whether ten or eight) can be brought forward so easily even for relatively "impoverished" inflectional systems such as Mainland Scandinavian, Bowern's claim that there is "very little evidence for change which operates on morphology alone" (2015: 249, cf. Section 3.3) is at least partly wrong. The examples have illustrated that new inflection classes can arise and serve an "intra-morphological" purpose; that supports the autonomy of morphology. New suffixes can have an intra-morphological meaning (e.g. Carstairs-McCarthy 2010; Maiden 2005).

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20. Thus, it is interesting that morphomes meet so much skepticism from many linguists who otherwise cherish the notion that grammar is somehow autonomous, cf. also Footnote 2.

6.2 Some other lessons to take away

The examples in Section 4 also illustrate a number of other points. Inflection classes can be reinforced, as the Swedish case in 4.4.1 and the Trøgstad, Askim, Spydeberg (TAS) case in 4.4.2 show, and this supports their reality (Maiden 1992, 2005, 2016a; Dammel 2011; Enger 2014). The relation between forms in the paradigms deserves attention; members in paradigms are indicators of each other (e.g. Carstairs-McCarthy 1994, 2002; Ackerman & Malouf 2013; Bonami & Beniamine 2016). This is not restricted to affixal inflection. A non-affixal marker can "index" an affixal one – and vice versa, as the Swedish and TAS cases of word tone show (4.3); the TAS and Meldal changes also indicate that non-affixal inflection is not an epiphenomenon (contra Bye & Svenonius 2012). The TAS case of feminines and masculines also shows that affixes can serve sociolinguistic purposes (4.1). In a diachronic perspective, sociolinguistic factors can contribute to the rise of morphemes.

The claim of Section 5 has been that some of the critique of the autonomous morphology program by Bermúdez-Otero & Luís (2016) is not convincing. Their concern with falsification does not seem quite relevant (5.1), and it does beg some questions about the definition of morphemes, a question often answered in an unsatisfactory way (cf. 4.4.3). Their question why speakers would postulate morphomic patterns seems to neglect well-known facts of diachrony (5.2). The idea of 'taking morphology seriously' has some serious drawbacks (5.3). Bermúdez-Otero & Luís (2016) do not address the observation that there may be reasons for morphomes (5.3). Form-form-relations are acknowledged by many functionalists working on language acquisition, so it is surprising that many generative linguists seem to cling to an extreme functionalism, by which such relations seem to be flatly denied (5.4).

The present study has presented well-known cases from Scandinavian, neither new nor surprising, but yet problematic for widely held ideas about inflectional morphology. An autonomously morphological level is useful for some purposes. Variation can be relevant for uncovering this level.

6.3 Envoi

The claim that "there is a morphomic level" is not necessarily very different from a claim that "there are aspects of morphology that cannot be reduced to phonology and syntax". I have focused on what used to be thought of simply as inflection classes without complete extra-inflectional motivation. Morphomic status need not be either-or; morphomic phenomena may be partly motivated by factors outside of morphology (Maiden 2013b), but still not reducible to such factors (e.g. Maiden 2013b; Meul 2013; Smith 2013).

If much of morphology is local or even redundant, perhaps that is simply because this is how languages work; they are

> sometimes messy [...] a good description, analysis, and theory, must accommodate the mess, not just step around it or cover it over. Among those who are looking only for generalization, idiosyncrasy is always something to be avoided. But by avoiding idiosyncratic facts, we run the risk of explaining a mirage of our own making.
>
> (Aronoff 2014)

In other words: "Morphology is often messy where we might expect it to be tidy, and it is surprisingly tidy in areas where messiness might seem tolerable" (Carstairs-McCarthy 2010: 6). Languages are better seen as "systems" of partly competing low-level regularities than as systems of all-encompassing, "global" rules (see e.g. Wurzel 1984; Carstairs-McCarthy 2008, 2010; Enger 2009; Maiden 2016a, 2018).[21]

Acknowledgments

References

Ackerman, Farrell & Malouf, Robert. 2013. Morphological organization: The low conditional entropy conjecture. *Language* 89(3): 429–464. https://doi.org/10.1353/lan.2013.0054

Andersen, Henning. 2010. From morphologization to de-morphologization. In *The Continuum Companion to Historical Linguistics*, Silvia Luraghi & Vit Bubenik (eds), 117–146. London: Continuum.

Anderson, Stephen R. 1992. *A-morphous Morphology* [Cambridge Studies in Linguistics 62]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511586262

Anderson, Stephen R. 2011. Stress-conditioned allomorphy in Surmiran (Rumantsch). In *Morphological Autonomy*, Martin Maiden, John Charles Smith, Maria Goldbach & Marc-Olivier Hinzelin (eds), 13–34. Oxford: OUP.

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21. There are similarities to this view also in Optimality Theory accounts (thanks to an anonymous reviewer for reminding me).

Anderson, Stephen R. 2013. Stem alternations in Swiss Rumantsch. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 8–23. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199678860.003.0002

Anderson, Stephen R. 2017. Words and paradigms. *Transactions of the Philological Society* 115(1): 1–13. https://doi.org/10.1111/1467-968X.12090

Aronoff, Mark. 1994. *Morphology by Itself* [Linguistic Inquiry Monograph 22]. Cambridge MA: The MIT Press.

Aronoff, Mark. 2012. Morphological stems: What William of Ockham really said. *Word Structure* 5(1): 28–51. https://doi.org/10.3366/word.2012.0018

Aronoff, Mark. 2014. Face the facts. In *Foisonnements morphologiques: études en homage à Françoise Kerleroux*, Florence Villoing & Sophie David (eds), 307–324. Paris: PUPO.

Aronoff, Mark. 2016. Unnatural kinds. In *The Morphome Debate*, Ana R. Luís & Ricardo Bermúdez-Otero (eds), 11–32. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780198702108.003.0002

Baerman, Matthew. 2015. Chapter 1: Introduction. In *The Oxford Handbook of Inflection*, Matthew Baerman (ed.), 1–11. Oxford: OUP.

Baerman, Matthew. 2016. Seri verb classes: Morphosyntactic motivation and morphological autonomy. *Language* 92(4): 792–823. https://doi.org/10.1353/lan.2016.0073

Bates, Elizabeth & MacWhinney, Brian. 1989. Functionalism and the competition model. In *The Crosslinguistic Study of Sentence Processing*, Brian MacWhinney & Elizabeth Bates (eds), 3–76. Cambridge: CUP.

Beard, Robert. 1995. *Lexeme-morpheme-base Morphology*. Albany NY: SUNY Press.

Beito, Olav Toreson. 1954. *Genusskifte i nynorsk* (Gender Change in New Norwegian). Oslo: Jacob Dybwad.

Bermúdez-Otero, Ricardo. 2013. The Spanish lexicon stores stems with theme vowels, not roots with inflectional class features. *Probus* 25(1): 3–103.

Bermúdez-Otero, Ricardo & Luís, Ana. 2016. A view of the morpheme debate. In *The Morphome Debate*, Ana Luís & Ricardo Bermúdez-Otero (eds), 309–340. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780198702108.003.0012

Blevins, James P. 2003. Stems and paradigms. *Language* 79(2): 737–767.
https://doi.org/10.1353/lan.2003.0206

Blevins, James P. 2016. *Word and Paradigm Morphology*. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199593545.001.0001

Blevins, Juliette & Blevins, James P. 2009. Analogy: An introduction. In *Analogy in Grammar: Form and Acquisition*, Juliette Blevins & James P. Blevins (eds), 1–12. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199547548.003.0001

Bonami, Olivier & Beniamine, Sarah. 2016. Joint predictiveness in inflectional paradigms. *Word Structure* 9(2): 156–182. https://doi.org/10.3366/word.2016.0092

Bowern, Claire. 2015. Diachrony. In *The Oxford Handbook of Inflection*, Matthew Baerman (ed.), 233–250. Oxford: OUP.

Bybee, Joan L. 2001. *Phonology and Language Use* [Cambridge Studies in Linguistics 94]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511612886

Bye, Patrik & Svenonius, Peter. 2012. Non-concatenative morphology as epiphenomenon. In *The Morphology and Phonology of Exponence*, Jochen Trommer (ed.), 427–495. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199573721.003.0013

Carstairs, Andrew. 1987. *Allomorphy in Inflexion*. London: Croom Helm.

Carstairs-McCarthy, Andrew. 1994. Inflection classes, Gender and the principle of contrast. *Language* 70(4): 737–788. https://doi.org/10.2307/416326

Carstairs-McCarthy, Andrew. 2001. Umlaut as signans and signatum: Synchronic and diachronic aspects. In *Yearbook of Morphology 1999*, Geert E. Booij & Jaap van Marle (eds), 1–23. Dordrecht: Kluwer. https://doi.org/10.1007/978-94-017-3722-7_1

Carstairs-McCarthy, Andrew. 2002. How stems and affixes interact. In *Morphology 2000* [Current Issues in Linguistic Theory 218], Sabrina Bendjaballah, Wolfgang Ulrich Dressler, Oskar E. Pfeiffer & Maria D. Voeikova (eds), 49–57. Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.218.05car

Carstairs-McCarthy, Andrew. 2005. Basic terminology. In *Handbook of Word-Formation*, Pavol Štekauer & Rochelle Lieber (eds), 5–25. Dordrecht: Springer. https://doi.org/10.1007/1-4020-3596-9_1

Carstairs-McCarthy, Andrew. 2008. System-congruity and violable constraints in German weak declension. *Natural Language and Linguistic Theory* 26(4): 775–793. https://doi.org/10.1007/s11049-008-9055-z

Carstairs-McCarthy, Andrew. 2010. *The Evolution of Morphology*. Oxford: OUP.

Clark, Eve E. 1993. *The Lexicon in Acquisition* [Cambridge Studies in Linguistics 65]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511554377

Croft, William. 1995. Autonomy and functionalist linguistics. *Language* 71(3): 490–532. https://doi.org/10.2307/416218

Dabrowska, Ewa. 2004. *Language, Mind and Brain*. Edinburgh: EUP.

Dabrowska, Ewa. 2006. Low-level schemas or general rules? *Language Sciences* 28(1): 120–135. https://doi.org/10.1016/j.langsci.2005.02.005

Dahl, Östen. 2004. *The Growth and Maintenance of Linguistic Complexity* [Studies in Language Companion Series 71]. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.71

Dammel, Antje. 2011. *Konjugationsklassenwandel* (Change in Verb Inflection Classes) [Studia Linguistica Germanica 103]. Berlin: De Gruyter.

Demske, Ulrike. 2008. Von morphomischen Stämmen und morphologischen Paradigmen (Of morphomic stems and morphological paradigms). In *Studien zu Literatur, Sprache und Geschichte*, Albrecht Greule, Hans-Walter Herrmann, Klaus Ridder & Andreas Schor (eds), 247–260. St. Ingbert: Röhrig Universitätsverlag.

Dixon, Robert M. W. 2015. *Edible Gender, Mother-in-Law Style and Other Grammatical Wonders*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780198702900.001.0001

Dressler, Wolfgang Ullrich. 2003. Naturalness and morphological change. In *Handbook of Historical Linguistics*, Brian D. Joseph & Richard Janda (eds), 461–472. Oxford: Blackwell. https://doi.org/10.1002/9780470756393.ch12

Endresen, Rolf Theil. 1990. Vikværsk. In *Den store dialektboka* (The Big Dialect Book), Ernst Håkon Jahr (ed.), 89–99. Oslo: Novus.

Enger, Hans-Olav. 2009. The role of core and non-core semantic rules in gender assignment. *Lingua* 119(9): 1281–1299. https://doi.org/10.1016/j.lingua.2009.02.004

Enger, Hans-Olav. 2011. Gender and contact: A natural morphology perspective on Scandinavian examples. In *Linguistic Universals and Language Variation*, Peter Siemund (ed.), 171–203. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110238068.171

Enger, Hans-Olav. 2012. Fire kroppsdelssubstantiver og en sammensvergelse (Four body part nouns and a conspiracy). In *Germansk filologi og norske ord: Festskrift til Harald Bjorvand*, John Ole Askedal, Tom Schmidt & Rolf Theil (eds), 94–108. Oslo: Novus.

Enger, Hans-Olav. 2013. Inflectional change, 'sound laws' and the autonomy of morphology. *Diachronica* 30(1): 1–26. https://doi.org/10.1075/dia.30.1.01eng

Enger, Hans-Olav. 2014. Reinforcement in inflection classes. *Word Structure* 7(2): 153–181. https://doi.org/10.3366/word.2014.0064

Esher, Louise. 2015a. Morphomes and predictability in the history of Romance perfects. *Diachronica* 32(4): 494–529. https://doi.org/10.1075/dia.32.4.02esh

Esher, Louise. 2015b. Formal asymmetries between the Romance synthetic future and conditional in the Occitan varieties of the western Languedoc. *Transactions of the Philological Society* 113(2): 249–270. https://doi.org/10.1111/1467-968X.12055

Evans, Nicholas & Levinson, Stephen C. 2009. The myth of language universals. *Behavioral and Brain Sciences* 32: 429–448. https://doi.org/10.1017/S0140525X0999094X

Goldberg, Adele. 2006. *Constructions at Work*. Oxford: OUP.

Haspelmath, Martin. 2008. Parametric versus functional explanations of syntactic universals. In *The Limits of Syntactic Variation* [Linguistics Today 132], Theresa Biberauer (ed.), 75–107. Amsterdam: John Benjamins. https://doi.org/10.1075/la.132.04has

Haugen, Tor Arne. 2014. Adjectival predicators and approaches to complement realisation. *Lingua* 140: 83–99. https://doi.org/10.1016/j.lingua.2013.12.007

Hock, Hans Henrich. 1991. *Principles of Historical Linguistics*, 2nd edn. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110219135

Hoff, Ingeborg. 1946. *Skjetvemålet* (The Dialect of Skiptvet). Oslo: Jacob Dybwad.

Hoff, Ingeborg. 1965. *Bygdemålet i Heggen og Frøland* (The Dialect of Heggen and Frøland). Askim. (No publisher given).

Hoff, Ingeborg. 1968. *Målet i Aurskog og Blaker* (The Dialect of Aurskog and Blaker). Oslo. (No publisher given).

Hudson, Richard A. 1996. *Sociolinguistics*, 2nd edn. Cambridge: CUP. https://doi.org/10.1017/CBO9781139166843

Hudson, Richard A. 2010. *An Introduction to Word Grammar*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511781964

Jackendoff, Ray. 2002. *Foundations of Language*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780198270126.001.0001

Joseph, Brian D. 2011. A localistic approach to universals and variation. In *Linguistic Universals and Language Variation*, Peter Siemund (ed.), 404–424. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110238068.404

Kågerman, Elisabeth. 1985. *Plural av neutral på obetonat -e* (Plural of neuters ending in unstressed -e) [Lundastudier i nordisk språkvetenskap A 36]. Malmö: Gleerup.

Kristoffersen, Gjert. 1992. Kvantitet i norsk. *Norsk Lingvistisk Tidsskrift* 10: 187–208.

Kristoffersen, Gjert. 2000. *The Phonology of Norwegian*. Oxford: OUP.

Kürschner, Sebastian. 2008. *Deklinationsklassenwandel* (Change in Noun Inflection Classes) [Studia Linguistica Germanica 92]. Berlin: Mouton de Gruyter.

Kürschner, Sebastian. 2016. Die Interaktion von Deklinationsklasse und Genus in oberdeutschen Dialekten. In *Formen und Funktionen*, Andreas Bittner & Constanze Spieß (eds), 35–60. Berlin: De Gruyter. https://doi.org/10.1515/9783110478976-004

Lakoff, George. 1987. *Women, Fire and Dangerous Things*. Chicago IL: Chicago University Press. https://doi.org/10.7208/chicago/9780226471013.001.0001

Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar*, Vol 1: *Theoretical Prerequisites*. Stanford CA: Stanford University Press.

Langacker, Ronald W. 2008. *Cognitive Grammar*. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780195331967.001.0001

Larsen, Amund B. 1907. *Kristiania bymaal* (The Urban Dialect of Kristiania). Kristiania [= Oslo]: Cammermeyer.

Larsen, Amund B. 1917. "Nabo-opposition – knot." (Neighbour opposition). Reprinted 1993 in *Historisk språkvitenskap/Historical Linguistics*, Ernst Håkon Jahr & Ove Lorentz (eds), 97–110. Oslo: Novus.

Lass, Roger. 1984. *Phonology*. Cambridge: CUP.

Leiss, Elisabeth. 1997. Synkretismus und Natürlichkeit. *Folia Linguistica* XXXI (31): 133–160.

Loporcaro, Michele. 2013. Morphomes in Sardinian verb inflection. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 137–160. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199678860.003.0008

Maiden, Martin. 1991. *Interactive Morphonology: Metaphony in Italian*. London: Croom Helm.

Maiden, Martin. 1992. Irregularity as a determinant of morphological change. *Journal of Linguistics* 28(2): 285–312. https://doi.org/10.1017/S0022226700015231

Maiden, Martin. 2001. What sort of thing is a derivational affix? In *Yearbook of Morphology 1999*, Geert Booij & Jaap van Marle (eds), 25–52. https://doi.org/10.1007/978-94-017-3722-7_2

Maiden, Martin. 2005. Morphological autonomy and diachrony. In *Yearbook of Morphology 2004*, Geert Booij & Jaap van Marle (eds), 137–175. Dordrecht: Springer.
https://doi.org/10.1007/1-4020-2900-4_6

Maiden, Martin. 2009. Where does heteroclisis come from? Evidence from Romanian dialects. *Morphology* 19(1): 59–86. https://doi.org/10.1007/s11525-009-9130-0

Maiden, Martin. 2011a. Allomorphy, autonomous morphology and phonological conditioning in the history of the Daco-Romance present and subjunctive. *Transactions of the Philological Society* 109(1): 59–91. https://doi.org/10.1111/j.1467-968X.2011.01250.x

Maiden, Martin. 2011b. Morphomes and 'stress-conditioned' allomorphy in Romansh. In *Morphological Autonomy*, Martin Maiden, John Charles Smith, Maria Goldbach & Marc-Olivier Hinzelin (eds), 36–50. Oxford: OUP.

Maiden, Martin. 2013a. The Latin 'third stem' and its Romance descendants. *Diachronica* 30(4): 492–530. https://doi.org/10.1075/dia.30.4.03mai

Maiden, Martin. 2013b. 'Semi-autonomous' morphology. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 24–45. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199678860.003.0003

Maiden, Martin. 2016a. Some lessons from history: Morphomes in diachrony. In *The Morphome Debate*, Ana R. Luís & Ricardo Bermúdez-Otero (eds), 33–63. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780198702108.003.0003

Maiden, Martin. 2016b. Chapter 3: Morphomes. In *The Oxford Guide to the Romance Languages*, Adam Ledgeway & Martin Maiden (eds), 708–722. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199677108.003.0043

Maiden, Martin. 2017. Romansh allomorphy (again!) In *On Looking into Words (and Beyond): Structures, Relations, Analyses*, Claire Bowern, Laurence Horn & Raffaella Zanuttini (eds), 169–188. Berlin: Language Science Press.

Maiden, Martin. 2018. *The Romance Verb: Morphomic Structure and Diachrony*. Oxford: OUP.
https://doi.org/10.1093/oso/9780199660216.001.0001

Matthews, Peter H. 1993. *Grammatical Theory in the United States from Bloomfield to Chomsky* [Cambridge Studies in Linguistics 67]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511620560

Matthews, Peter H. 2001. *A Short History of Structural Linguistics*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511612596

Mayerthaler, Willi. 1981. *Morphologische Natürlichkeit*. Wiesbaden: Athenaion.

Meul, Claire. 2013. The fate of the -ID(I)- morpheme in the Central Dolomitic Ladin varieties of Northern Italy. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 68–95. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199678860.003.0005

Mugdan, Joachim. 1986. Was ist eigentlich ein Morphem? [What is a morpheme, really?] *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 39(1): 29–42.

Newmeyer, Frederick J. 1983. *Grammatical Theory*. Chicago IL: Chicago University Press.

Nielsen, Peter Juul. 2016. *Functional Structure in Morphology and the Case of Nonfinite Verbs Theoretical Issues and the Description of the Danish Verb System*. Leiden: Brill.

Nilsen, Marianne B. 2012. Sterke verb og semantiske fellestrekk (Strong Verbs and Semantic Common Features). MA thesis, University of Oslo.

Nübling, Damaris. 2000. Prinzipien der Irregularisierung (Principles of Irregularisation) [Linguistische Arbeiten 415]. Tübingen: Niemeyer. https://doi.org/10.1515/9783110915082

Nübling, Damaris. 2008. Was tun mit Flexionsklassen? (What to do with inflection classes?) *Zeitschrift für Dialektologie und Linguistik* LXXV(3): 282–331.

O'Neill, Paul. 2013. The morphome and morphosyntactic/semantic features. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 221–247. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199678860.003.0012

Odden, Oda R. 2013. Om bøyingsklassers liv som en følge av generelle kognitive prosesser (On the life of inflection classes in consequence of general cognitive processes). Student paper, University of Oslo.

Papazian, Eric. 2002. Flertall av intetkjønnsord i bokmål og østlandske dialekter – noen utviklingstendenser (Plural of neuters in Bokmål and East Norwegian dialects – some tendencies). In *MONS 9. Utvalgte artikler fra Det niende møtet om norsk språk i Oslo 2001*, Inger Moen, Hanne Gram Simonsen, Arne Torp & Kjell Ivar Vannebo (eds), 156–166. Oslo: Novus.

Paul, Hermann. 1880. *Principien der Sprachgeschichte* (Principles of Language History). Halle (Saale): Max Niemeyer.

Pinker, Stephen. 1994. *The Language Instinct*. London: Penguin Books. https://doi.org/10.1037/e412952005-009

Plaster, Keith & Polinsky, Maria. 2007. Women are not dangerous things. *Harvard Working Papers in Linguistics* 12: 1–44.

Popper, Karl. 1972. *The Logic of Scientific Discoveries*. London: Hutchinson.

Ragnhildstveit, Silje. 2016. Genus og transfer når norsk er andrespråk (Gender and Transfer when Norwegian is L2). PhD dissertation, University of Bergen.

Round, Erich. 2016. Kayardild inflectional morphotactics is morphomic. In *The Morphome Debate*, Ricardo Bermudez-Otero & Ana R. Luis (eds), 228–247. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780198702108.003.0009

Røyneland, Unn. 2009. Dialects in Norway: Catching up with the rest of Europe? *International Journal of the Sociology of Language* 196-197, 7–30.

Sameien, Marianne B., Spilling, Eivor F. & Enger, Hans-Olav. 2018. Reorganising grammatical variation in Norwegian. In *Reorganising Grammatical Variation* [Studies in Language Companion Series 203], Antje Dammel, Mattias Eitelmann & Mirjam Schmuck (eds), 209–230. Amsterdam: John Benjamins.

Sampson, Geoffrey. 2013. A counterexample to homonymy avoidance. *Diachronica* 30(4): 579–591. https://doi.org/10.1075/dia.30.4.05sam

Sims, Andrea D. & Parker, Jeff. 2016. How inflection class systems work: On the informativity of implicational structure. *Word Structure* 9(2): 215–239.
https://doi.org/10.3366/word.2016.0094

Sims-Williams, Helen. 2016. Analogical levelling and optimization: The treatment of pointless lexical allomorphy in Greek. *Transactions of the Philological Society* 114(3): 315–338.
https://doi.org/10.1111/1467-968X.12078

Skjekkeland, Martin. 2005. *Dialektar i Noreg: Tradisjon og fornying* (Dialects in Norway: Tradition and renewal). Kristiansand: Høyskoleforlaget.

Smith, John Charles. 2011. Variable analyses of a verbal inflection in (mainly) Canadian French. In *Morphological Autonomy*: *Perspectives from Romance Inflectional Morphology*, Martin Maiden, John Charles Smith, Maria Goldbach & Marc-Olivier Hinzelin (eds), 311–326. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199589982.003.0015

Smith, John Charles. 2013. The morpheme as a gradient phenomenon. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 247–262. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199678860.003.0013

Spencer, Andrew & Zwicky, Arnold M. 1998. Introduction. In *Handbook of Morphology*, Andrew Spencer & Arnold M. Zwicky (eds), 1–10. Oxford: Blackwell.

Stump, Gregory T. 1993. On rules of referral. *Language* 69(3): 449–479.
https://doi.org/10.2307/416695

Stump, Gregory T. 2001. *Inflectional Morphology: A Theory of Paradigm Structure* [Cambridge Studies in Linguistics 93]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511486333

Stump, Gregory T. 2006. Heteroclisis and paradigm linkage. *Language* 82(2): 279–322.
https://doi.org/10.1353/lan.2006.0110

Tiersma, Pieter Meijes. 1982. Local and general markedness. *Language* 58(4): 832–849.
https://doi.org/10.2307/413959

Vincent, Nigel. 2013. Compositionality and change in conditionals and counterfactuals. In *The Boundaries of Pure Morphology: Diachronic and Synchronic Perspectives*, Silvio Cruschina, Martin Maiden & John Charles Smith (eds), 116–136. Oxford: OUP.
https://doi.org/10.1093/acprof:oso/9780199678860.003.0007

Wurzel, Wolfgang Ullrich. 1980. Ways of morphologizing phonological rules. In *Historical Morphology*, Jacek Fisiak (ed.), 443–463. Berlin: Mouton de Gruyter.
https://doi.org/10.1515/9783110823127.443

Wurzel, Wolfgang Ullrich. 1984. *Flexionsmorphologie und Natürlichkeit*. Berlin: Akademie-Verlag. (English translation 1989. *Inflectional Morphology and Naturalness*. Dordrecht: Kluwer).

Wurzel, Wolfgang Ullrich. 1989. Von der Inadäquatheit einer Affixmorphologie (On the inadequacy of an affixal morphology). *Linguistische Studien* Series A 194: 277–298.

Zingler, Tim. 2017. Evidence against the morpheme: The history of English phonaesthemes. *Language Sciences* 62: 76–90. https://doi.org/10.1016/j.langsci.2017.03.005

How to get lost

The *Präteritumschwund* in German dialects

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The loss of the preterite forms in German dialects has a specific areal distribution that mirrors the historical process in space. The article discusses the areal distribution of the loss on the basis of dialectological data and outlines the underlying process, the semantic and functional expansion of the present perfect form. Additionally, the hierarchy of the form loss and its influencing factors are identified using the data from dialect grammars. Accordingly, the loss of the preterite seems to be a foremost frequency driven process with additional influence by morphological, syntactic and semantic properties of the verbs.

1. Introduction

The loss of a grammatical form is an obvious sign for an underlying process of language change. One remarkable example is the loss of the preterite tense forms in southern German dialects – the so-called *Präteritumschwund*. In these dialects, the preterite tense form (e.g. *ich schrieb* 'I wrote') was replaced by the present perfect tense form (e.g. *ich habe geschrieben* 'I have written'). Having a look at the Central German dialects further north, we see that there are some remaining verbs that still form preterite forms while other verbs lost their preterite forms completely. In contrast, the northern German dialects conserve the preterite form: they show intact preterite paradigms. Thus, we find a certain variation in the German dialects with regard to the preservation of preterite forms. This specific areal structure of variation has to be understood as evidence of a grammaticalization process which led to a gradual replacement of the preterite form from south to north. The areal distribution mirrors the historical developments in space.

This article aims at analyzing the connection between the areal distribution of the tense forms in German dialects, the underlying processes of re-organizing the

German tense and aspect system[1] and the precise process of losing the preterite forms. Throughout, the focus of the article lies on the question of how forms are "getting lost": In which order do the preterite forms get lost and which factors influence this hierarchy of preterite loss?

This paper is organized as follows. First, I will describe the areal distribution of the preterite and perfect tense forms in German dialects based on data from dialect grammars and linguistic maps (Section 2). In a second step, I will focus on the underlying language change that caused the loss, which can be identified as the grammaticalization of the present perfect tense form (Section 3). While grammaticalization theory usually focuses on the forms that benefit from grammaticalization processes, I will focus on the form that becomes the unfavorable variant and discuss the parameters of its decay in Section 4. In Section 5, I will give an outlook and discuss the principles which lead to a loss of forms.

2.   The areal distribution of the preterite loss

The German dialects are probably some of the best documented regional varieties of modern languages. The scientific description of German dialects started in the 19th century. Since then and in the course of the last 150 years, many dialect atlases, grammars, and dictionaries were compiled – all of them representing various approaches, methods and following different scientific agendas. Today's scholars are in the excellent position to bring together the diverse data and examine the principles of language dynamics by looking at concrete examples of language change. In the last two decades, a lot of these data has been made available through digitization (cf. Fischer & Limper, to appear). For example, dialect dictionaries can be accessed via the website <www.woerterbuchnetz.de> and digitized linguistic atlases, speech recordings, and the *Georeferenced Bibliography of Areal Linguistics* (GOBA), an online database of scholarly literature concerning regional languages which contains more than 26,600 publications, are available on the research platform <Regionalsprache.de> (cf. Ganswindt, Kehrein & Lameli 2015; Limper, Pheiff & Williams, submitted). The increasing online publication of dialectological data and documentation establishes new opportunities in research. In his linguistic dynamics approach, Schmidt (2010: 204) introduces the concept of dynamic

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1.   Referring to the "German tense and aspect system" does not implicate that I believe that German is an aspect language with grammaticalized aspect forms. What is meant here, is that German has a dynamic system of certain expressions to express temporal and aspectual meanings; some of them are grammaticalized, some are expressed compositionally. Still, every situation is defined temporally and aspectually.

language atlases as a new "research laboratory" in which the data from different linguistic atlases and other dialectological documentations is brought together and used to trace the development of linguistic innovations through time and space.

In this spirit, the following analysis is based on a meta-analysis of different dialectological documents, aiming at a widespread documentation of how preterite and present prefect tense forms are distributed in German dialects (in Germany[2]). The presented results are based on my dissertation, published as Fischer (2018). Below, I will present two partial analyses. The first is an examination of the preterite maps in the *Sprachatlas des Deutschen Reichs* (Wenker 1888–1923), the second analysis evaluates approximately 250 dialect grammars with regard to the preterite vs. perfect distribution.

In 1879, Georg Wenker started his famous survey in which school teachers from 46,011 places in the German Empire translated 40 standard German sentences into the local dialects.[3] After the survey was completed in 1888, the data was analyzed and mapped in the *Sprachatlas des Deutschen Reichs* (cf. Lameli 2014; Fleischer 2017).[4] Included in the *Sprachatlas des Deutschen Reichs* are six maps about preterite verb forms (indicative active). Table 1 gives an overview.

In the *Sprachatlas des Deutschen Reichs* the linguistic forms are mapped by defining areas of leading forms ("Leitformen") that are discriminated from each other by isoglosses. Deviations from leading forms are represented by small symbols. In this way, on the one hand, the maps are easy to read and on the other hand, they are accurate in representing the original data. All maps show a striking areal distribution of two main regions. In the northern area, the preterite forms were expressed with dialectal preterite variants (e.g. *kam, kamm, kom, kum, käum, kēm, koam* as leading forms for *kam* 'came' in sentence no. 34), whereas in the southern areas, the preterite forms were translated into present perfect forms (e.g. *ischt komma* [Althütte 38403], *is kumma* [Geibelsee 39311] 'has come' in sentence no. 34).[5] Both areas are separated by isoglosses that were called *Präteritalgrenzen* ('preterite borders'), cf. König (2015: 163; referring to map 346 "kamen"). Comparing the isoglosses of all six maps in one map (cf. Map 1), the picture becomes more detailed and revealing.

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2. Although the preterite loss is a transnational and also cross-linguistic phenomenon, my study was restricted to German dialects in Germany for reasons of research efficiency.

3. Adding up the survey formulars from all partial surveys (also in e.g. Austria, Switzerland, and linguistic enclaves) Fleischer (2017: 149) calculates a total sum of 58,869 questionnaires.

4. A century later, the complete atlas was digitized within the research project *Digitaler Wenker-Atlas* and later on it was integrated into the online platform *Regionalsprache.de* (cf. Ganswindt, Kehrein & Lameli 2015; Lameli, Purschke & Rabanus 2015).

5. The numbers refer to the ID-numbers of the survey questionnaires (*Wenkerbogennummer*).

Table 1. Preterite forms in Wenker's survey

Word form	Map no.	Sentence in survey questionnaire*
war be\PRT.3SG 'was'	78	6: *Das Feuer war zu stark/heiß, die Kuchen sind ja unten ganz schwarz gebrannt.* 'The fire was too strong, the cakes are burnt quite black underneath.'
woll-t-en will-PRT-3PL 'wanted to'	510	37: *Die Bauern hatten fünf Ochsen und neun Kühe und zwölf Schäfchen vor das Dorf gebracht, die wollten sie verkaufen.* 'The peasants had brought five oxen and nine cows and twelfe (little) sheep before the village; they wanted to sell them.'
tat do\PRT.3SG 'did'	297	20: *Er that so, als hätten sie ihn zum dreschen bestellt; sie haben es aber selbst gethan.* 'He behaved [did; HF] as if they had engaged him for the threshing; but they did it themselves.'
lag-en lie\PRT-3PL 'lay'	350	24: *Als wir gestern Abend zurück kamen, da lagen die Andern schon zu Bett und waren fest am schlafen.* 'When we came back yesterday evening, the others were [lay; HF] already in bed and fast asleep.'
kam-en come\PRT-3PL 'came'	346	24: (see above)
kam come\PRT.3SG 'came'	474	34: *Das Wort kam ihm von Herzen!* 'The word came from his heart!'

* The translation of the Wenker sentences follows Stone & Priestley (1992: 95–96).

Map 1 looks like a multi-layered image where the borders of the variants do not align uniformly but are staggered in a series of tiers. The isoglosses of the preterite forms of *liegen* 'to lie', *kommen* 'to come' and *tun* 'to do' run through the Central German dialect area, from west to east. They cross the Moselle Franconian and Hessian dialect areas in the south and the Rhine Franconian and East Franconian dialect areas in the north. In contrast, the isogloss of the modal verb *wollen* 'would' runs further in south and the isogloss of *sein* 'to be' runs even further southwards, crossing right through the Rhine Franconian and the East Franconian dialect areas. According to that, it seems likely that the verbs and their specific properties influence "where the isogloss runs", i.e. how well the preterite form is preserved in the dialects. The verbs that were mapped in the *Sprachatlas* differ in regard to their inflection class (strong verb vs. irregular weak verb vs. suppletive verb), their syntactic properties (main verbs vs. modal verb vs. copula verb) and also other characteristics that need to be analyzed more closely (see Section 4). The distribution has the form of a diffusion fan with multiple tiers of verb-specific isoglosses. A closer look at the isoglosses and the single variants reveals many deviations from the leading form in the north and south of the isoglosses. Furthermore, the isoglosses
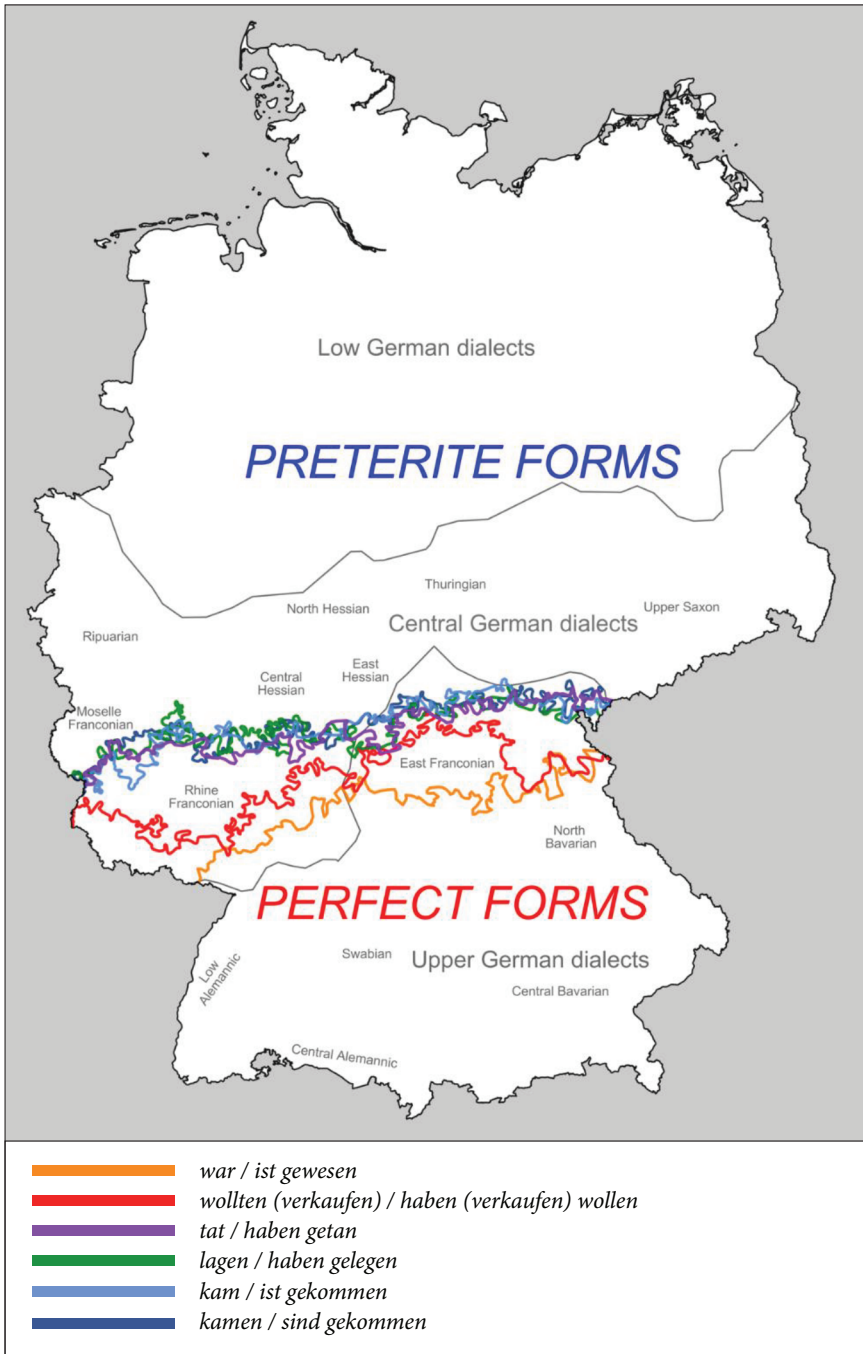
Map 1. Areal distribution of preterite loss according to the *Sprachatlas des Deutschen Reichs* (created with www.regionalsprache.de)

themselves are ill-defined and run in a meandering style which is an indication for a diffusion zone where a linguistic innovation competes with an older form (cf. Girnth 2010: 113–116).

Considering these observations, it becomes obvious that the areal distribution is not two-parted as each single preterite map suggests but that there is a wide transition zone that ranges from a region of preterite loss in the south to a region of preterite preservation in the north. As a second conclusion, we can state, that the distribution depends on the specifics of each verb since there is a clear difference between the isoglosses of main verbs (with *ablaut* inflection: *liegen* 'to lie', *kommen* 'to come', *tun* 'to do'), the isoglosses of the modal verb *wollen* 'to want to' and the isogloss of the (in every respect) "special" verb *sein* 'to be'.

These findings can be confirmed and broadened by analyzing the data from dialect grammars. The grammatical description of German dialects began in the last quarter of the 19th century in the *Neogrammarian* tradition and was continued in the 20th century (cf. Reiffenstein 1982). The *Georeferenced Bibliography of Areal Linguistics* (GOBA) contains what is probably a complete inventory of dialect grammars of German dialects and allows to define various query criteria. The query and subsequent review of the grammars provided a selection of 244 dialect grammars that include information about dialectal verb paradigms. Those grammars were categorized according to whether they contain information about the existence of preterite forms in the dialect at hand, and whether they provide a description about the use of the perfect form in contrast to the preterite. The results have been mapped in Map 2. It shows the places and areas under investigation which are colored according to their preterite form inventory. The colors range from orange to blue and express the amount of verbs that form preterite forms in each dialect. The scale goes from dialects with no preterite forms (orange) to dialects that preserve the preterite form without exceptions (blue).[6]

At the first glance, we see that the color spectrum is represented in space: there are orange and yellow areas in the south of Germany, continued by the greenish and light blue colors in Central Germany and dark blue regions in the northern half of Germany. The Upper German dialects Alemannic, Swabian, Bavarian and southern East Franconian, mostly show a complete loss of preterite forms (= orange areas), but with a few exceptions, e.g. the punctual documentation of *war/waren* 'was/were' (= yellow areas). In a northward direction, the dialects show an increasingly higher amount of preterite forms. While in Rhine Franconian, Moselle Franconian, and northern East Franconian, there are mostly only a few (2 to 4) verbs or a limited number of verbs (5 to 30) that form preterite forms (= greenish

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6.   The dialect regions that are colored in blue with red stripes and frames (no preterite loss, with expansion of the perfect) will be discussed in Section 3.4.
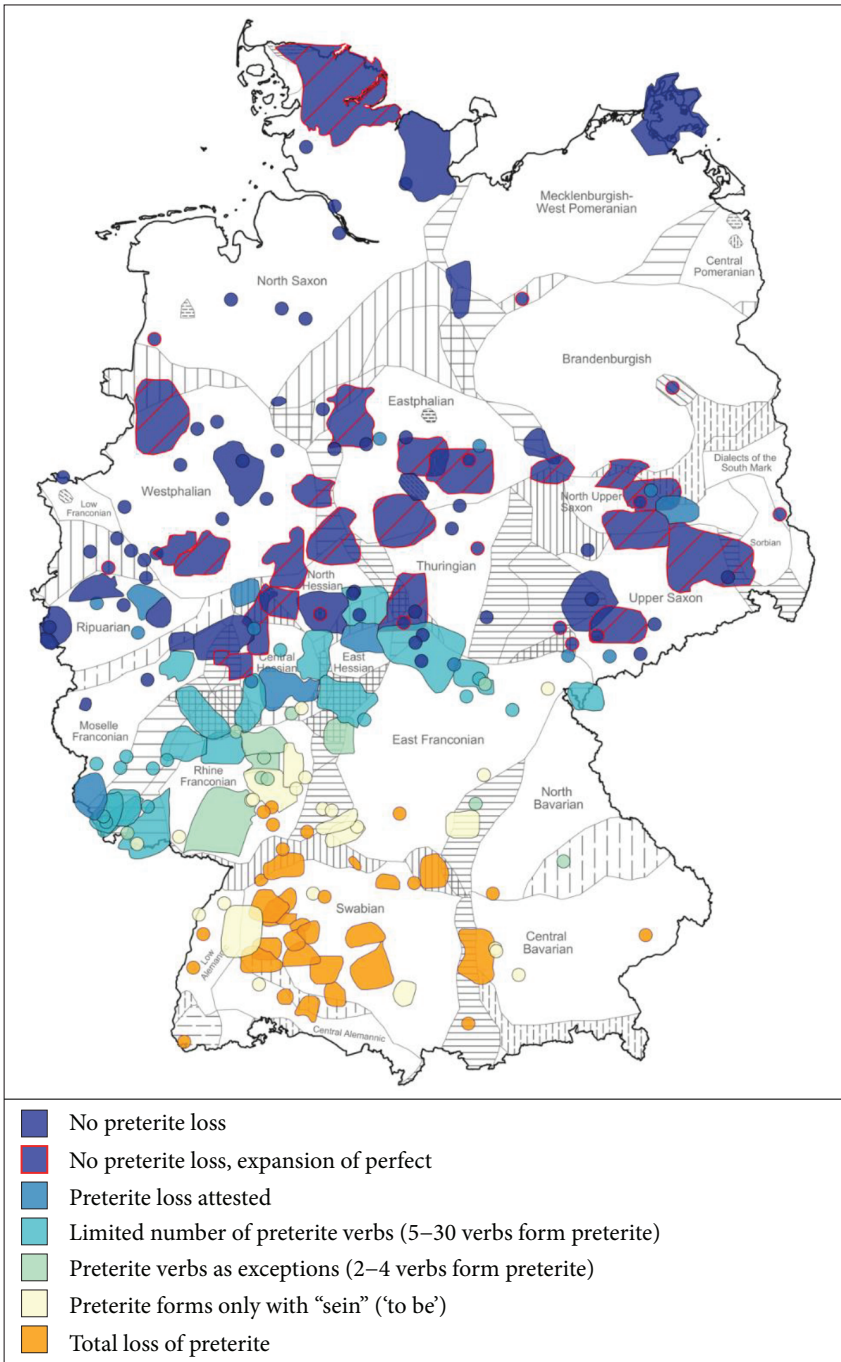
Map 2. Preterite loss in German dialects according to dialect grammars
(created with <www.regionalsprache.de>)

Legend:

- No preterite loss
- No preterite loss, expansion of perfect
- Preterite loss attested
- Limited number of preterite verbs (5–30 verbs form preterite)
- Preterite verbs as exceptions (2–4 verbs form preterite)
- Preterite forms only with "sein" ('to be')
- Total loss of preterite

and turquoise areas), further northwards the amount of those verbs increases (more than 30 verbs) (= light blue areas). Beginning in Ripuarian, North Hessian and East Central German dialects and extending to the the whole area of Low German dialects, complete preterite paradigms can be attested (= dark blue areas). Partially and not restricted to one area, those dialects show an expansion of the present perfect form in frequency and/or function (= dark blue areas with red stripes). While the transition zone in the West Central German dialects is quite broad, it is rather narrow in the East Central German region.

Map 2 illustrates that the transition zone between preterite loss and preterite preservation is broader than the isoglosses in Map 1 suggest. There is a clear gradation of the number of the verbs that form preterite forms, that increases from "none" in the south to "all" in the north. This staggering can be explained by the successive loss of preterite forms proceeding from verb to verb. In Map 1 the loss of the strong verbs *liegen* 'to lie', *kommen* 'to come', *tun* 'to do' is more advanced than the loss of the preterite forms of the verbs *wollen* 'would' and *sein* 'to be'. The staggered, areal distribution can be interpreted as a hierarchy of the decay of the preterite forms: the historical development becomes visible in space: it started in the south and continued in a northward direction.

The data from the *Sprachatlas des Deutschen Reichs* and the dialect grammars complement one another as the first map gives an impression of the whole area of German dialects and the second represents detailed documentations of local dialects and dialect areas. The data is based on different methods, i.e. questionnaires (*Sprachatlas*) vs. introspection and observation (dialect grammars). Therefore, they provide different accesses to dialect systems and are subject to different methodological advantages and disadvantages. By putting together the data into maps as has been done here, we create an idealized compilation that is only based on a few verbs (*Sprachatlas*) on the one hand or a generalization of linguistic data from several generations (dialect grammars, late 19th – early 21st century) on the other hand. Only when having in mind that the real picture might be much more differentiated, we can sum up the findings in the following overview of the areality of the German preterite loss in Map. 3.
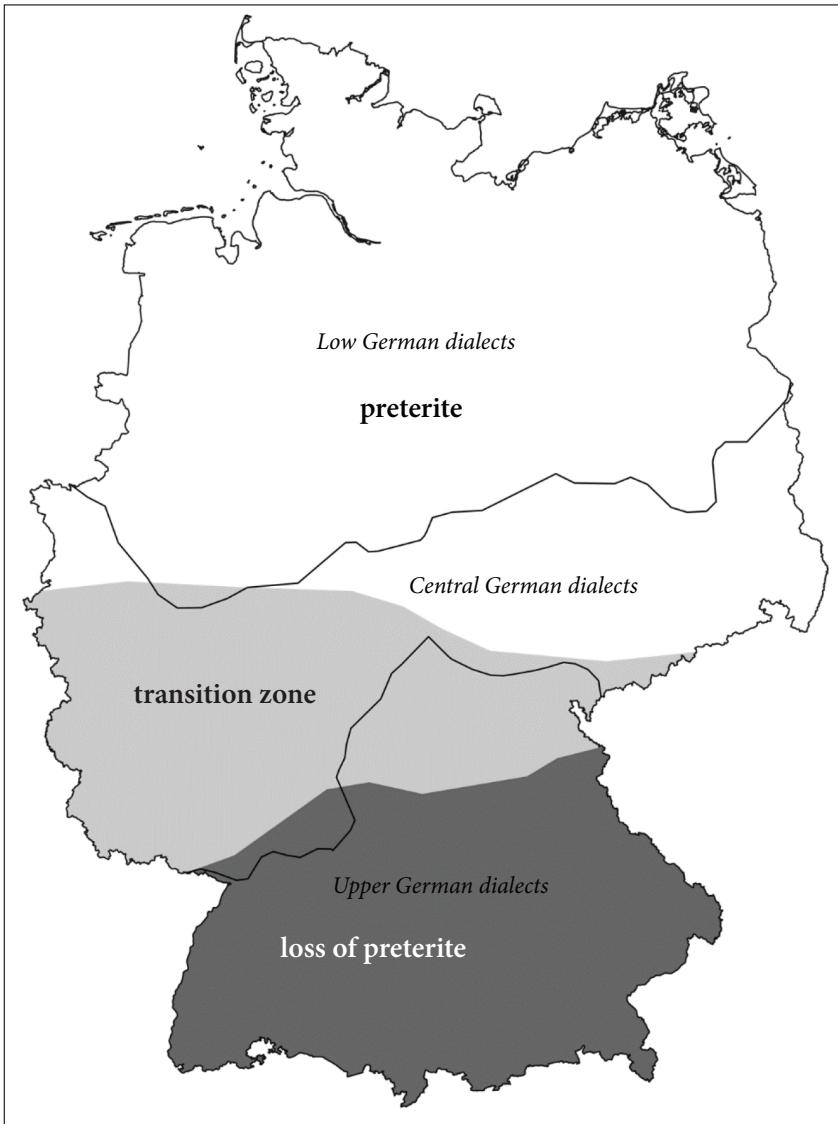
Map 3. The loss of preterite in the dialects of Germany
(created with <www.regionalsprache.de>)

3. The explanation

Dialects that lost the preterite form use other tense forms to refer to past situations. First of all, it is the present perfect form that is used frequently in regional varieties but also in the spoken standard variety. Having a close look at historical developments we can observe that the decay of the preterite forms is caused by the semantic and functional expansion of the present perfect tense form. The expansion of the perfect and the subsequent displacement of the preterite started in the south and continued in a northward direction which resulted in the areal distribution as described above. The process can be divided into four steps.[7]

3.1 Step 1: Grammaticalization of the present perfect form

While the preterite form is part of the Old Germanic heritage, the present perfect is a relatively new tense form that was grammaticalized in the Old Saxon and Old High German period. It emerged from a resultative construction in which HAVE and BE were used as main verbs and the participle functioned as an adjective, attributing the object or the subject of a given proposition. Through analogy and reanalysis, the meaning of the construction 'HAVE/BE + PTCP' changed into a "perfect" form that expressed a past event whose resultant state persists at the reference time (= retrospective meaning), whereas the resultative construction only referred to the resultant state without making an assertion about the preceding event (cf. e.g. Gillmann 2016: 232–241). In this way, the new perfect forms were integrated into the Germanic system of only two tense forms (present vs. preterite form) and became specialized in expressing aspectual, i.e. retrospective meaning. With this new tense form, the German tense and aspect system became more elaborate, since it provided more grammatical forms to specify the aspectual and temporal meaning of a situation. In her study, Gillmann (2016) shows that the grammaticalization process proceeded along a transitivity and telicity scale and captured the verbs one after another, depending on their lexical and syntactic properties (cf. also Grønvik 1986). The process came to an end in the early 16th century when the last verbs (i.e. modals) could form perfect forms (cf. Oubouzar 1974: 57–58).

Today, we can observe that all German dialects developed present perfect tense forms for all verb classes. However, we see that the late grammaticalization of the perfect form with modals led to regional differences in how modal verbs form their

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7. Cf. also the similar, but not identical classification in Thieroff (2000) in which five stages (0–4) are differentiated and the use as future perfect is included, too (which is not discussed here).

perfect forms.[8] Other regional differences can be found in the auxiliary selection of certain verbs (ʜᴀᴠᴇ vs. ʙᴇ) which indicates that the grammaticalization of the perfect form developed differently depending on the dialect area (cf. Gillmann 2016: 232–244, 306–313).

3.2 Step 2: Semantic expansion of the present perfect

While all Germanic languages developed perfect forms, only some of them also show a semantic expansion of the perfect as a subsequent development (Drinka 2017, Fischer, to appear). The semantic expansion can be explained by the "two-faced" nature of the retrospective aspectuality. Retrospectivity brings together the past event with the subsequent moment from where it is viewed. Depending on the lexical aspect (± ʙᴏᴜɴᴅᴇᴅɴᴇss, ± ᴅʏɴᴀᴍɪᴄɪᴛʏ, ± ᴅᴜʀᴀᴛɪᴏɴ) and contextual elements the focus can shift between event and aftermath. When the past event is focused, and the reference time is de-focused (i.e. is not asserted), the temporal anchoring becomes vague and a past interpretation seems likely. The concept of a semantic shift was discussed by Waugh (1987), Elsness (1997), and Dentler (1997, 1998) for the French, English, and German present perfect. Bringing together their description of the temporal and aspectual continuum between "perfect meaning" and "preterite meaning", in Fischer (2018: 288–294) I developed a model of the expansion process, summarized here in Table 2. The important criteria that influence the continuum are the temporal anchoring of a situation (in the present vs. past time) and the definiteness of the anchoring (e.g. by adverbials, context). Another criterion is the expression of current relevance. Current relevance is a controversial and complex concept (cf. e.g. Elsness 1997: 67–74; Dahl & Hedin 2000); here, it is understood as focused aftermath: The resultant state of a situation is more focused than the event itself. The bridging context between the "perfect uses" and the "preterite uses" is the expression of "indefinite past with current relevance" which lacks an obvious past time anchor but focusses on the aftermath of the situation (cf. Example (2)). In English, this temporally underspecified meaning allows the use of both forms, while with definite anchoring the simple past tense form has to be used obligatorily (Example (3)–(5)) (cf. Elsness 1998: 230). In German, the present perfect expanded semantically and gradually, it took over all of the beforehand "preterite uses" (Example (4) and (5)).

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8. Cf. the following examples from Fischer (2018: 322) that show variants for the standard construction „ᴀᴜx.ꜰɪɴ + verb.ɪɴꜰ + modal verb.ɪɴꜰ": (i) *Mit dem Krom hot*.ᴀᴜx *sowieso koaner meh speele*.ɪɴꜰ *wolle*.ᴍᴠ.ɪɴꜰ (Rhine Franconian), (ii) *Korl hett*.ᴀᴜx *den Text nich lesen*.ɪɴꜰ *kunnt*. ᴍᴠ.ᴘᴛᴄᴘ (Low German), (iii) *Bos honn*.ᴀᴜx *ich freher käennt*.ᴍᴠ.ᴘᴛᴄᴘ *geschwemm*.ᴘᴛᴄᴘ*!* (East Hessian).

Table 2. Model of the semantic expansion of the present perfect

uses	"Perfect use"	"Transitional use"		"General past use"	
	present retrospective	*indefinite past with current relevance*	*definite past with current relevance*	*past perfective*	*past imperfective*
TEMPORALITY	PRESENT	PAST	PAST	PAST	PAST
ASPECTUALITY	RETROSPECTIVE	RETROSPECTIVE	RETROSPECTIVE	PERFECTIVE	IMPERFECTIVE
current relevance	+	+	+	−	−
temporal anchor	present time anchor	<u>no obvious anchoring</u>	past time anchor	past time anchor	past time anchor
example	1	2	3	4	5
perfect extension	→				

Examples:

(1) *Jetzt ist die Königin angekommen.*
   'Now, the Queen has arrived.'

(2) *Die Königin ist angekommen.*
   'The Queen has arrived/arrived.'

(3) *Die Königin ist diesen Morgen angekommen und immer noch da.*
   'The Queen arrived this morning and she is still here.'

(4) *Die Königin ist um 9 Uhr angekommen/Die Königin kam um 9 Uhr an.*
   'The Queen arrived at 9 o'clock.'

(5) *Die Königin ist immer um 9 Uhr angekommen/Die Königin kam immer um 9 Uhr an.*
   'The Queen used to arrive at 9 o'clock.'

In her diachronic study, Dentler (1997, 1998) shows that the present perfect form gradually expanded into the past uses of the expansion path: While in the 11th century it is used as a preterite in only 1.2% of the cases, in the 16th century it had increased to 20.9% past tense use (see also Amft 2013 and Sapp 2009). Interpreting the grammatical description in grammars of Gothic (Braune & Heidermanns 2004: §167) and the historical stages of High German (Braune & Reiffenstein 2004: §301; Paul 2007: §S 10; Ebert et al. 1993: §S 159, §S 163), and contemporary grammars such as the Duden-Grammatik (2016: 518), it is possible to trace the semantic development throughout the history of German. In Table 3 we see that, beginning in the Middle High German period, the present perfect form developed into a general past tense form that today expresses both, past perfective and past imperfective meaning (cf. Fischer 2018: 214–243).

Table 3. Semantic development of the High German present perfect based on grammatical descriptions (+ = documented, − = not documented, ↑ = emerging)

	"perfect meaning"	"preterite meaning"	
	present retrospective	past perfective	past imperfective
Gothic	−	−	−
Old High German	+	−	−
Middle High German	+	↑	−
Early New High German	+	+	−
New High German	+	+	+

3.3 Step 3: Functional expansion of the present perfect

The semantic expansion not only went along with an increase in category frequency (cf. Sapp 2009: 425, Oubouzar 1974: 79, 83), but also with an expansion into new functional domains. First, in Old and Middle High German the present perfect was prototypically used in "spoken language" contexts, e.g. in written dialogs and other contexts with a deictic temporal organization (cf. the prototypical use of the present perfect in Middle High German in Zeman 2010: 214–219). That was the most important functional domain of the present perfect, also because it meshed with the present retrospective meaning which refers to the deictic center of the speaker (speech time = reference time). Referring to past time situations without current relevance, the perfect was detached from the speech time and could also be used in narrative contexts. First it was restricted to the textual function of foregrounding (referring to events on a timeline; perfective viewpoint), later the perfect was also used for textual backgrounding (describing situations; imperfective viewpoint).

The functional expansion is mirrored in the distributions of frequencies, when different discourse modes are compared. Lindgren (1957) analyzed texts from 14th to 17th century separately for passages of "direct speech" and "narration". A new compilation of these data in Fischer (2018: 155) shows a rapid increase of the perfect forms in direct speech (from 45.9% in the 14th century to 71.3% in the 17th century) whereas in narrative passages its increase was much slower at first (1.3% in the 14th century, 5.1% in the 15th century) but then the perfect forms increased to 33.7% in the 16th, and to 45.2% in the 17th century.

Based on the data from dialect grammars, the semantic expansion of the present perfect form can be attested for all German dialects. Thus, also in areas with preservation of the complete preterite paradigms there are dialect grammars that describe that the perfect can be used for referring to past situations. In my corpus analysis of spoken regional language (Fischer 2018: 294–308) I found out that the past imperfective meaning can be expressed by the present perfect form in all

three examined dialect areas (Central Bavarian, Moselle Franconian, Northern Low Saxon). However, in Northern Low Saxon the past imperfective uses of the perfect are presumably restricted to descriptive discourse modes (and not attested in narration), but this has to be studied further. Therefore, we can conclude that all German dialects show a semantic expansion of the present perfect form (step 2) but only in the Upper and Central German dialects the functional expansion (step 3) can be attested definitely.

3.4   Step 4: Marginalization of the preterite form

Other than in the written standard variety, in the spoken varieties the expanding present perfect pushed the preterite form aside, becoming the major tense form for expressing past tense. The decreasing communicative relevance of the preterite in Central and Upper German dialects led to its marginalization and subsequently to its decay. This becomes visible in historical texts, e.g. in the Bavarian chronicles from the 15th–17th century that Lindgren analyzed in his 1957 study. In the first half of the 17th century, the perfect forms obtain the majority over the preterite forms (Lindgren 1957: 106). Rowley (2013: 62–65) examines various Central Bavarian texts from the 17th century and finds only documentation for some verbs – mostly irregular verbs and modal verbs – with indicative preterite forms (*haben* 'have', *können* 'could', *fangen* 'catch', *gehen* 'go', *stehen* 'stand', *tragen* 'carry', *machen* 'make/do', *schauen* 'look' and probably *tun* 'do', *stimmen* 'be right' and *wissen* 'know'). Whereas in the 19th and 20th century the Bavarian dialect shows a complete loss of preterite forms (cf. Map 2, orange areas), in the 17th century there are still some last preterite verbs left – which, today, is exactly the same situation in the Central German transition zone.

The semantic shift and the marginalization of the preterite form did not affect all German varieties in the same way. The development began in the south within the Upper German dialects and continued from there in northern and western direction (Lindgren 1957; Jörg 1976; Sapp 2009).[9] Compared to their southern neighbors, the historical Low German varieties preserved a stable perfect for a long time. Still in the 15th/16th century, the Low German present perfect was restricted to "perfect uses" while the Early New High German perfect form had already developed into a narrative past tense form (cf. Fischer 2018: 233–243). It was only after the High German written language gained influence on the Low German

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9. Drinka (2004, 2017) also discusses the West Central German area as starting point of the semantic shift (influenced by the preceding French development). To understand this process fully, we need more detailed studies that reconstruct the beginning of the semantic shift and the subsequent developments on a broad empirical basis.

region that the perfect in Low German dialects also started to expand. In the 19th and 20th century, the dialect grammars document an increased use of the present perfect and partly also a functional expansion (e.g. the use as a narrative tense form) for many Low German dialects. In Map 2 those dialect regions are colored in blue (= no preterite loss) with red stripes and contours (= expansion of the perfect).

The expansion of the present perfect preceded the decay of the preterite. Through its semantic and functional developments, the perfect form substituted the preterite form and pushed it aside. This process was supported by specific advantages of the perfect form (e.g. its advantageous periphrastic structure, cf. Abraham & Conradie 2001; Abraham 2004, 2005) and also disadvantages of the preterite form (e.g. defective preterite paradigms through sound change) as discussed in Fischer (2018: 316–362).

4.   The hierarchy of preterite loss

The hierarchy of preterite loss can be reconstructed by bringing together the information from historical studies and the dialectological analysis that was presented in Section 2.

In the historical corpus studies, we learned that it is the seldom and the regular main verbs that first became substituted by the perfect form. In her study on Early New High German pamphlets, Amft (2013: 196) showed that it is the modal verbs that are least used with perfect forms whereas the weak (regular inflection) and strong (*ablaut* inflection) verbs show a stronger tendency towards the perfect form. Sapp's (2009) analysis of the *Bonner Frühneuhochdeutsch-Korpus* (Bonn Early New High German Corpus) arrives at similar results. Modals and the verb *haben* show only a marginal or no increase of perfect tokens whereas weak, strong, and irregular weak verbs (verbs with *Rückumlaut*) and also *sein* show a considerable growth of perfect tokens between the 14th and 16th century (cf. Sapp 2009: 427). The perfect expansion did not affect all verbs at the same time. The expansion and substitution processes are conditioned by semantic, morphological and syntactic properties of the verbs. Verbs that show a late and low increase of perfect forms are those that preserve their preterite forms longer.

This becomes also visible in the dialectological data. Preterite forming verbs that were documented by the dialect grammars of the preterite loss and transition zone are those verbs that preserve their preterite forms longer than others. Examining those verbs, the order of the preterite decay becomes observable. Table 4 shows the ranking list of verbs that were documented in dialect grammars as verbs that form preterite forms. The data are based on all dialect grammars of Alemannic, Swabian, Bavarian, East Franconian, Rhine and Moselle Franconian that were

analyzed in Fischer (2018: 36–61).[10] The list covers all verbs with at least three occurrences, i.e. down to rank 15. The second column of Table 4 gives the number of dialect grammars that document a preterite form for the specific verb. The following columns list the verbs, their translation and their preterite form (1+3SG.IND. ACT). The next two columns give information about the token frequencies of the preterite forms in a corpus of spoken language, the *Archiv für Gesprochenes Deutsch* that is accessible via the *Datenbank für Gesprochenes Deutsch*, which facilitates a search in all transcripts of the speech recordings. The corpus was chosen because it is the largest corpus of spoken German. The speech recordings stem from various projects and represent a mixture of dialectal, regiolectal and standard varieties. For the query that is presented below I chose all corpora that contained monolingual German, adult language with a total sum of 9,748,380 tokens.[11] In addition to the total sum of occurences of the preterite forms of each verb I also present the rank of the retrieved token frequencies.[12] The aim was to give a first overview of the frequency properties of the verbs that conserve their preterite forms best.

The last three columns of Table 4 give information about syntactic, morphological, and semantic properties. The column about syntactic properties informs about "syntactic functions" of the verbs. This means, if the verb serves as finite part of a multipart verbal complex (e.g. modal, copula, auxiliary verbs) or if it is a main verb with a one-piece verbal complex. The most important morphological property is the inflection class of a verb that informs about the strategies of word modification (ninth column). As semantic characteristic the lexical aspect (situation type) was determined which is a problematic undertaking as there are only verb infinitives and no propositions. The lexical aspect of verbs differs from context to context. There are many factors that influence the characteristics of the lexical aspect (expression of duration, boundedness and dynamicity), e.g. complements, temporal and local adverbials, and the number of the subject. Therefore, the semantic classification has to be seen as an initial and incomplete characterization that is not valid for all possible uses.

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10. The Hessian dialect region belongs to the transition zone, too, but some of the dialect grammars only give unclear and vague information about the remaining preterite forms. Therefore, they are not included in the compilation in Table 4.

11. In detail, the chosen corpora are *BW: Berliner Wendekorpus, DR: Deutsche Mundarten DDR, DS: Dialogstrukturen, FOLK: Forschungs- u. Lehrkorpus für gesprochenes Deutsch; FR: Grundstrukturen: Freiburger Korpus; GWSS: Gesprochene Wissenschaftssprache Kontrastiv; HL: Deutsche Hochlautung; OS: Deutsche Mundarten: ehemalige deutsche Ostgebiete); PF: Deutsche Umgangssprachen: Pfeffer-Korpus; ZW: Zwirner-Korpus*; cf. URL: <https://dgd.ids-mannheim. de/dgd/pragdb.dgd_extern.welcome> (18 October 2018).

12. In the query I used regular expressions as e.g. (*war|warst|waren|wart*), (*wollte|wolltest|wollten|wolltet*), and (*hatt|hatte|hattest|hatten|hattet*) that covered all forms of the preterite paradigm.

Table 4. Ranking list of verbs with preterite forms in German dialects

Rank	Number of documentations in dialect grammars	Verbs	Translation	Preterite form 1+3SG.IND. ACT standard variety	Token frequency of preterite forms in spoken language	Rank (referring to the token frequency)	Syntactic properties	Morphological properties	Semantic properties (lexical aspect/ situation type)
1	72	*sein*	'be'	*war*	107,452	1	main verb, copula verb, auxiliary	irregular suppletive verb	state
2	37	*wollen*	'would'	*wollte*	7,822	7	modal verb	irregular weak verb	state
3	29	*sollen*	'should'	*sollte*	4,339	10	modal verb	preterit-present	state
4	28	*haben*	'have'	*hatte*	35,499	2	main verb, auxiliary verb	irregular weak verb	state
5	25	*können*	'could'	*konnte*	8,436	6	modal verb	preterit-present	state
6	23	*müssen*	'must'	*musste*	4,310	12	modal verb	preterit-present	state
7	20	*dürfen*	'may'	*durfte*	1,160	20	modal verb	preterit-present	state
7	20	*sagen*	'say'	*sagte*	7,651	8	main verb	regular weak verb	activity
8	12	*mögen*	'like'	*mochte*	217	28	modal verb	preterit-present	state
8	12	*wissen*	'know'	*wusste*	843	22	main verb	preterit-present	state
9	11	*denken*	'think'	*dachte*	1,509	15	main verb	irregular weak verb	state
9	11	*kŏmmen*	'come'	*kam*	17,109	4	main verb	regular strong verb	accomplishment, also: frequent with stative notions
10	9	*geben*	'give'	*gab*	5,417	9	main verb	regular strong verb	achievement, also: frequent with stative notions
11	8	*gehen*	'go'	*ging*	13,110	5	main verb	irregular strong verb	activity / accomplishment

(*continued*)

Table 4. (*continued*)

Rank	Number of documentations in dialect grammars	Verbs	Translation	Preterite form 1+3SG.IND. ACT standard variety	Token frequency of preterite forms in spoken language	Rank (referring to the token frequency)	Syntactic properties	Morphological properties	Semantic properties (lexical aspect/ situation type)
12	7	*stehen*	'stand'	*stand*	2,509	13	main verb	irregular strong verb	state
13	6	*sitzen*	'sit'	*saß*	1,307	17	main verb	irregular strong verb	state
13	6	*werden*	'become'	*wurde*	30,881	3	main verb, copula verb, auxiliary verb	regular strong verb	accomplishment
14	4	*fahren*	'drive'	*fuhr*	1,416	16	main verb	regular strong verb	activity
14	4	*hängen*	'hang'	*hing*	273	26	main verb	regular strong verb	state
14	4	*liegen*	'lie'	*lag*	1,631	14	main verb	regular strong verb	state
14	4	*nehmen*	'take'	*nahm*	1,171	19	main verb	regular strong verb	achievement
15	3	*brauchen*	'need'	*brauchte*	839	23	modal verb, main verb	regular weak verb	state
15	3	*fangen*	'catch'	*fing*	934	21	main verb	regular strong verb	achievement
15	3	*fliegen*	'fly'	*flog*	214	29	main verb	regular strong verb	activity
15	3	*helfen*	'help'	*half*	202	31	main verb	regular strong verb	activity
15	3	*lassen*	'let'	*ließ*	685	24	main verb	regular strong verb	state
15	3	*laufen*	'run'	*lief*	579	25	main verb	regular strong verb	activity
15	3	*schlafen*	'sleep'	*schlief*	259	27	main verb	regular strong verb	activity
15	3	*sehen*	'see'	*sah*	1,284	18	main verb	regular strong verb	state
15	3	*treffen*	'meet/ strike'	*traf*	207	30	main verb	regular strong verb	achievement
15	3	*tun*	'do'	*tat*	4,327	11	main verb	irregular strong verb	activity

Table 4 allows insights into the interrelation of the properties of verbs and their ranking in the hierarchy of preterite decay. As a first observation, we see that the verbs that preserve their preterite forms longer are predominantly verbs with high frequency, syntactic complexity, morphological irregularity and stative aspectual meaning.

Before I discuss the influencing factors one after the other, I want to give some preliminary remarks on the quality of the data set. The dialect grammars were mostly published at the end of the 19th century and the first half of the 20th century and represent accurate, detailed, and comprehensive descriptions of the local base dialects. Sometimes, the descriptions are not straightforward, and they differ in regard to the explicitness in the description. Occasionally, this led to some questions: If a verb is not mentioned in a dialect grammar, does that mean that the verb does not exist in the dialect, or has it just not been attested? To which verbs is the author referring when there are generalized remarks about e.g. modals or weak verbs? Even though the grammatical descriptions are excellent in their validity, the comparison of several grammars becomes difficult. Here, a subsequent survey that collects preterite forms with an identical survey method (e.g. questionnaires with verb lists) would be helpful. Until then, we have to read the data with a grain of salt.

4.1   Frequency

All 31 verbs in Table 4 show a high or relatively high frequency. The preterite forms of *sein* show the highest values (107,452), followed by the preterite forms of the verbs *haben*, *werden*, *kommen* and *gehen* with over 10,000 hits. A number of other verbs have more than 1,000 hits and all verbs show token frequencies at least in the three digit range. With regard to the relative small corpus, the occurrences can be characterized as rather frequent.

Comparing the ranking based on documentations in dialect grammars (first column) with the frequency values and the frequency ranking, we see that the distribution is not strictly parallel. In the first ten ranks there are some verbs that are considerably less frequent than others (*dürfen*, *mögen*, *wissen*, and *denken*), whereas in ranks 11 to 15 there is only *gehen*, *werden*, and *tun* that are more frequent than expected. So, frequency seems to play an important role, but it does not present a one-to-one correspondence with the ranking of the preterite forms. Other properties, e.g. syntactic complexity, have an additional influence on the hierarchy of the demise of the preterite.

High frequency is attended by certain effects, e.g. regarding the mental lexicon (cf. Bybee 1985: 117–123; 2001: 113–116; 2007: 10–11; 2010: 24–25). High-frequent forms are better entrenched in the mental lexicon (*lexical strength*) and therefore, they are more resistant to the decay than low frequent forms (*conserving*

effect). Frequency also effects the phonetic and morphological form of a word. Irregular verb forms are supported by their high frequency and can be accessed more easily since they are more lexicalized than regular forms. This leads to the next factor, the inflection type.

4.2   Morphological irregularity

It is absolutely striking that from the 31 verbs that preserve their preterite forms best, there are only two verbs with (historically) regular weak inflection: *sagen* (which is often formed irregularly in dialects: e.g. *iχ zā:t* 'I said', Lehnert 1926: 124) and *brauchen* (which developed into a modal verb in contemporary German). All other verbs show more or less irregular inflection: The regular and irregular strong verbs form their preterite forms with stem modulation (*ablaut;* e.g. *laufen – laufe – lief – gelaufen* 'to run') and to some extent also with additional modulation of consonant stem elements (e.g. *stehen – stehe – stand – gestanden* 'to stand'). The preterite-present verbs combine old Indo-European perfect stems with preterite dental suffixes and inflect similar to irregular weak verbs (e.g. *können – kann – konnte – [gekonnt]* 'can'). In addition to the dental suffix, irregular weak verbs also developed modulations of the stem as in *denken – denke – dachte – gedacht* 'to think' or *haben – habe – hatte – gehabt* 'to have'. The maximum of irregularity is shown by the verb *sein* ('to be') that forms its inflectional forms suppletively: *sein – bin/ist – war – gewesen*. The majority of German verbs follows a regular inflection (but with relatively low token frequencies), while the irregular verbs present the minority of verb types, but with surprisingly high token frequencies as shown in Table 5.

Table 5. Token and type frequencies of German verbs (according to Augst 1975: 258; adapted from Nübling et al. 2017: 293)

Inflectional class	Frequency Type frequency ca. 4000 verbs in the lexicon	Token frequency occurrences in a text
weak verbs	3811 = 95.3%	41%
strong verbs	169 = 4.2%	41%
irregular verbs (*sein, gehen, tun,* etc.)	20 = 0.5%	18%

So, it is telling that the preterite preserving verbs mostly follow an irregular inflection, demonstrating how well token frequency, lexicalization, mental entrenchment and phonetic economy (rather short and memorable forms) are interconnected (cf. Bybee 1985: 117–123; 2001: 113–116; 2007: 10–11; 2010: 24–25).

4.3   Syntactic complexity

The syntactic properties seem to have a certain effect on the preservation of preterite forms as well. Ten out of the 31 verbs in Table 4 already show a syntactic framing structure (i.e. *Klammerstruktur*) in their synthetic tense forms: modal and copula verbs. Example (6) and (7) contrast the preterite and the perfect form of the verb *verkaufen* 'to sell'. While the preterite *verkauften* is a synthetic tense form, the perfect *haben verkauft* is formed analytically. In German, this leads to a verbal frame (*Verbalklammer*) that establishes a syntactic middle field.

(6)   *Die Bauern **verkauften** die Kühe.*
       'The farmers sold the cows.'

(7)   *Die Bauern **haben** die Kühe **verkauft**.*
       'The farmers have sold the cows.'

With modals the verbal bracket already exists in the preterite form (8) as the finite modal verb (*wollten*) requires an infinitive form in the right bracket (*verkaufen*). By forming a perfect form of a modal verb in (9), the right bracket becomes more complex (*haben* [...] *verkaufen wollen*), but the basic sentence structure with left and right bracket remains as in (8).

(8)   *Die Bauern **wollten** die Kühe **verkaufen**.*
       'The farmers wanted to sell the cows.'

(9)   *Die Bauern **haben** die Kühe **verkaufen wollen**.*
       'The farmers have wanted to sell the cows.'

In language processing, the German syntactic framing structure with left and right bracket offers advantages since the finite auxiliary in the left bracket allows an early identification of the subject by verbal agreement. To some extent, there is also an advantage in discourse structuring as the middle field makes it possible to vary the order of the clausal elements and put specific elements in focus as Abraham & Conradie (2001) and Abraham (2004, 2005) argue:

> [...] in languages with SVOV-order the wide middle field between the two complementary V-positions allows for scrambling and, as a consequence, for considerable discourse-functional reordering between objects and subjects as well as adjuncts. This is a tremendous advantage for aural decoding, since, first, other than in written code, agreement identification cannot rely on reappearance of any single code, and, second, the identification and distinction of topics (themata) vs. comments (rhemata) is of utmost importance for speakers and hearers involved in the discourse. (Abraham 2004: 247)

Modal and copula verbs, and other verbs with a syntactic framing structure already show a verbal bracket and its advantages in the synthetic tense forms. When forming a perfect tense form, they get an unfavorable, complex right verbal bracket with at least two elements (cf. Sieberg 1984). This seems to be another reason why those verbs preserve their preterite forms longer than "usual" main verbs.

4.4 Semantic properties

The majority of the verbs that preserve the preterite can be classified as states or activities – situation types that are characterized by unboundedness and durativity. These two qualities do not agree well with retrospective aspectuality since they do not include a situational boundary. Therefore, they are more resistant to the typical "perfect meaning" (the retrospective aspectuality) and historically reluctant to forming the present perfect form. The verbs from the first ranks are those verbs that were the last to undergo the perfect grammaticalization.

The combination and interaction of the verb-specific characteristics and the underlying factors influence the hierarchy of preterite loss, as presented in Table 6. They are responsible for the specific areal distribution that was documented in Section 2 and represents the historical developments in space.

Table 6. The hierarchy of preterite loss

Preterite loss	Verb type	Example
	rarely used verbs	*wrang* 'wrung'
	regular strong and weak verbs	*sang* 'sang', *besuchte* 'visited'
	frequent regular and irregular verbs	*fing* 'caught', *dachte* 'thought'
	auxiliaries	*hatte* 'had'
	modal verbs	*konnte* 'could'
	special verb *sein*	*war* 'was'
Preterite preservation		

5.   The principles of losing forms

The preterite loss is a particularly interesting phenomenon as it allows several insights into the nature of the underlying process of language change – we learn about *how forms get lost*.

The loss of a grammatical form can be caused by a competing form. In our case the loss of preterite is induced by the expanding present perfect form that marginalizes and substitutes the preterite tense forms. It is not the case that the concept expressed by a certain form is also lost when the form is lost; instead, the concept is taken over by a competing form.

The process happens gradually and successively, influenced by certain factors. Those factors can be deduced from the set of the remaining and most resistant verbs in the dialects of the transition and loss zone and also from historical corpus studies. Thus, the process is mostly frequency driven but also influenced by the morphological strategies of inflection, as well as syntactic and semantic properties of the verbs.

Through the areal distribution of the loss in the regional varieties, the historical process becomes accessible. The process started in the southern German dialects – where, today, the preterite forms are lost completely – and continued in a northward direction where we find a clear gradation of the number of preterite forming verbs. The dialectological and historical findings had to be brought together to better understand this process of language change. The usage-based approach was helpful in explaining the selection of preterite preserving verbs – but only to a specific extent. Then, other factors that are connected to the semantic and syntactic properties of the verbs had to be applied.

At this point, it would be interesting to compare different processes of form loss and broaden the perspective to other lexical categories. To what extent are those processes frequency driven, and which other factors are important? And, on the other hand, which factors have a conservative effect on "threatened" word forms?

Acknowledgement

References

Abraham, Werner & Conradie, C. Jac. 2001. Präteritumschwund und Diskursgrammatik. *Präteritumschwund in gesamteuropäischen Bezügen: areale Ausbreitung, heterogene Entstehung, Parsing sowie diskursgrammatische Grundlagen und Zusammenhänge*. Amsterdam: John Benjamins. https://doi.org/10.1075/z.103

Abraham, Werner. 2004. The European demise of the simple past and the emergence of periphrastic perfect: Areal diffusion or natural, autonomous evolution under parsing facilitation? *In Focus on Germanic Typology* [Studia typologica 6], Werner Abraham (ed.), 241–271. Berlin: Akademie Verlag.

Abraham, Werner. 2005. Präteritumschwund und das Aufkommen des analytischen Perfekts in den europäischen Sprachen: Sprachbundausbreitung oder autonome Entfaltung? In *Moderne Dialekte, neue Dialektologie*, Eckhard Eggers, Jürgen Erich Schmidt & Dieter Stellmacher (eds), 115–133. Stuttgart: Steiner.

Amft, Camilla. 2013. Das präteritale Konzept im Frühneuhochdeutschen. Zur Distribution von Präteritum und präteritalem Perfekt in Flugschriften des 16. Jahrhunderts. PhD dissertation, Uppsala University.

Augst, Gerhard. 1975. Wie stark sind die starken Verben? Überlegungen zur Subklassifikation der nhd. Verben. In *Untersuchungen zum Morpheminventar der deutschen Gegenwartssprache*, Gerhard Augst (ed.), 231–281. Tübingen: Narr.

Braune, Wilhelm & Heidermanns, Frank. 2004. *Gotische Grammatik: Mit Lesestücken und Wörterverzeichnis*, 20th edn. Tübingen: Niemeyer. https://doi.org/10.1515/9783110945089

Braune, Wilhelm & Reiffenstein, Ingo. 2004. *Althochdeutsche Grammatik,* I: *Laut- und Formenlehre*, 15th edn. Tübingen: Niemeyer. https://doi.org/10.1515/9783110930887

Bybee, Joan L. 1985. *Morphology: A Study of the Relation between Meaning and Form* [Typological Studies in Language 9]. Amsterdam: John Benjamins. https://doi.org/10.1075/tsl.9

Bybee, Joan. 2001. *Phonology and Language Use*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511612886

Bybee, Joan. 2007. *Frequency of Use and the Organization of Language*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780195301571.001.0001

Bybee, Joan. 2010. *Language, Usage and Cognition*. Cambridge: CUP. https://doi.org/10.1017/CBO9780511750526

Dahl, Östen & Hedin, Eva. 2000. Current relevance and event reference. In *Tense and Aspect in the Languages of Europe* [Empirical Approaches to Language Typology, EUROTYP 20–6], Östen Dahl (ed.), 385–401. Berlin: Mouton de Gruyter.

Archiv für Gesprochenes Deutsch (ADG) / *Datenbank für Gesprochenes Deutsch* (DGD), Institut für Deutsche Sprache (ed.). <http://dgd.ids-mannheim.de> (25 April 2018).

Dentler, Sigrid. 1997. *Zur Perfekterneuerung im Mittelhochdeutschen. Die Erweiterung des zeitreferentiellen Funktionsbereichs von Perfektfügungen* [Göteborger germanistische Forschungen 37]. Göteborg: Acta Universitatis Gothoburgensis.

Dentler, Sigrid. 1998. Gab es den Präteritumschwund? In *Historische germanische und deutsche Syntax* [Osloer Beiträge zur Germanistik 21], John Ole Askedal (ed.), 133–147. Frankfurt: Peter Lang.

Drinka, Bridget. 2004. Präteritumschwund: Evidence for areal diffusion. In *Focus on Germanic Typology* [Studia Typologica 6], Werner Abraham (ed.), 211–240. Berlin: Akademie Verlag.

Drinka, Bridget. 2017. *Language Contact in Europe. The Periphrastic Perfect through History*. Cambridge: CUP. https://doi.org/10.1017/9781139027694

Duden-Grammatik. 2016 = Wöllstein, Angelika & Dudenredaktion (eds). 2016. *Duden. Die Grammatik. Unentbehrlich für richtiges Deutsch. Der Aufbau der deutschen Sprache vom Laut über das Wort und den Satz bis hin zum Text und zu den Merkmalen der gesprochenen Sprache*, 9th edn. Mannheim: Dudenverlag.

Ebert, Robert Peter, Reichmann, Oskar, Solms, Hans-Joachim & Wegera, Klaus-Peter (eds). 1993. *Frühneuhochdeutsche Grammatik* [Sammlung kurzer Grammatiken Germanischer Dialekte, A. Hauptreihe Nr. 12]. Tübingen: Niemeyer. https://doi.org/10.1515/9783110920130

Elsness, Johan. 1997. *The Perfect and the Preterite in Contemporary and Earlier English* [Topics in English Linguistics 21]. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110810264

Fischer, Hanna & Limper, Juliane. To appear. Regionalsprachliche Forschungsergebnisse online. In *Language and Space – An International Handbook of Linguistic Variation*, Vol. 4: *Deutsch* [Handbücher zur Sprach- und Kommunikationswissenschaft 30.4], Joachim Herrgen & Jürgen Erich Schmidt (eds). Berlin: De Gruyter Mouton.

Fischer, Hanna. 2018. *Präteritumschwund im Deutschen. Dokumentation und Erklärung eines Verdrängungsprozesses* [Studia Linguistica Germanica 132]. Berlin: De Gruyter.

Fischer, Hanna. To appear. The development of the perfect in selected Middle and New Germanic languages. In *Perfects in Indo-European Languages*, Vol. II: *The Later History of Perfects in IE Languages*, Thomas Jügel & Robert Crellin (eds). Amsterdam: John Benjamins.

Fleischer, Jürg. 2017. *Geschichte, Anlage und Durchführung der Fragebogen-Erhebungen von Georg Wenkers 40 Sätzen: Dokumentation, Entdeckungen und Neubewertungen* [Deutsche Dialektgeographie 123]. Hildesheim: Olms.

Ganswindt, Brigitte, Kehrein, Roland & Lameli, Alfred. 2015. Regionalsprache.de (REDE). In *Regionale Variation des Deutschen – Projekte und Perspektiven*, Roland Kehrein, Alfred Lameli & Stefan Rabanus (eds), 421–453. Berlin: De Gruyter. https://doi.org/10.1515/9783110363449-019

Gillmann, Melitta. 2016. *Perfektkonstruktionen mit ›haben‹ und ›sein‹. Eine Korpusuntersuchung im Althochdeutschen, Altsächsischen und Neuhochdeutschen* [Studia Linguistica Germanica 128]. Berlin: De Gruyter Mouton. https://doi.org/10.1515/9783110492170

Girnth, Heiko. 2010. Mapping language data. In *Language and Space. An International Handbook of Linguistic Variation*, Vol. 2: *Language Mapping* [Handbücher zur Sprach- und Kommunikationswissenschaft 30.2], Alfred Lameli, Roland Kehrein & Stefan Rabanus (eds), 98–121. Berlin: De Gruyter Mouton. https://doi.org/10.1515/9783110219166.1.98

Grønvik, Ottar. 1986. *Über den Ursprung und die Entwicklung der aktiven Perfekt- und Plusquamperfektkonstruktionen des Hochdeutschen und ihre Eigenart innerhalb des germanischen Sprachraumes*. Oslo: Solum.

Jörg, Ruth, 1976. *Untersuchungen zum Schwund des Präteritums im Schweizerdeutschen*. [Basler Studien zur deutschen Sprache und Literatur 52]. Tübingen: Francke.

König, Werner, 2015. *dtv-Atlas Deutsche Sprache*, 18th edn. München: Deutscher Taschenbuch Verlag.

Lameli, Alfred. 2014. *Schriften zum "Sprachatlas des Deutschen Reichs", Band 3: Erläuterungen und Erschließungsmittel zu Georg Wenkers Schriften*, Unter Mitarbeit von Johanna Heil & Constanze Wellendorf [Deutsche Dialektgeographie 111.3]. Hildesheim: Olms.

Lameli, Alfred, Purschke, Christoph & Rabanus, Stefan. 2015. In *Regionale Variation des Deutschen: Projekte und Perspektiven*, Roland Kehrein, Alfred Lameli & Stefan Rabanus (eds), 129–156. Berlin: De Gruyter.

Lehnert, Aloys. 1926. *Studien zur Dialektgeographie des Kreises Saarlouis* [Rheinische Beiträge und Hülfsbücher zur germanischen Philologie und Volkskunde 12]. Bonn: Klopp.

Limper, Juliane, Pheiff, Jeffrey & Williams, Anneli. To appear. The REDE SprachGIS: A geographic information system for linguists. In *Handbook of the Changing World Language Map*, Stan Brun & Roland Kehrein (eds). Dordrecht: Springer.

Lindgren, Kaj B. 1957. *Über den oberdeutschen Präteritumschwund* [Suomalaisen Tiedeakatemian Toimituksia. Annales Academiæ Scientiarum, Sarja-ser. B Nide-Tom 112,1]. Helsinki: Suomalaisen Kirjallisuuden Kirjapaino.

Nübling, Damaris, Dammel, Antje, Duke, Janet & Szczepaniak, Renata. 2017. *Historische Sprachwissenschaft des Deutschen. Eine Einführung in die Prinzipien des Sprachwandels*, 5th edn. Tübingen: Narr.

Oubouzar, Erika. 1974. Über die Ausbildung der zusammengesetzten Verbformen im deutschen Verbalsystem. *Beiträge zur Geschichte der deutschen Sprache und Literatur (PBB)* 95: 5–96.

Paul, Hermann. 2007. *Mittelhochdeutsche Grammatik* [Sammlung kurzer Grammatiken Germanischer Dialekte, A. Hauptreihe Nr. 2], Neu bearbeitet von Thomas Klein, Hans-Joachim Solms & Klaus-Peter Wegera, 25th edn. Tübingen: Niemeyer.

Reiffenstein, Ingo 1982: Das phonetische Beschreibungsprinzip als Ergebnis junggrammatischer und dialektologischer Forschungsarbeiten. In *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, Vol. 1, Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert Ernst Wiegand (eds), 23–38. Berlin: De Gruyter.

Regionalsprache.de (REDE): *Forschungsplattform zu den modernen Regionalsprachen des Deutschen*, Schmidt, Jürgen Erich, Herrgen, Joachim & Kehrein, Roland (eds). 2008 ff. With the collaboration of Dennis Bock, Brigitte Ganswindt, Heiko Girnth, Simon Kasper, Roland Kehrein, Alfred Lameli, Slawomir Messner, Christoph Purschke & Anna Wolańska. Marburg: Forschungszentrum Deutscher Sprachatlas. (25 April 2018)

Rowley, Anthony R. 2013. 'Waß sy zLanzet zue hat tragn': "Der Bauernsohn in der Kirche" und die "Bauernklagen". Drei westmittelbairische Stücke aus der Mitte des 17. Jahrhunderts – Texte und Darstellung des Dialekts. In *Was sich in Landshut zugetragen hat – und anderswo. Beiträge zur Schmellerforschung und darüber hinaus* [Jahrbuch der Johann-Andreas-Schmeller-Gesellschaft 2012], Christian Ferstl & Anthony R. Rowley (eds), 11–89. Regensburg: Ed. Vulpes.

Sapp, Christopher D. 2009. Syncope as the cause of Präteritumschwund. New data from an Early New High German corpus. *Journal of Germanic Linguistics* 21(4): 419–450. https://doi.org/10.1017/S1470542709990134

Schmidt, Jürgen Erich. 2010. Language and space: The linguistic dynamics approach. In *Language and Space: Theories and Methods* [Handbooks of Linguistics and Communication Science 30.1], Peter Auer & Jürgen Erich Schmidt (eds), 201–225. Berlin: De Gruyter Mouton.

Sieberg, Bernd. 1984. Perfekt und Imperfekt in der gesprochenen Sprache. PhD dissertation, Universität Bonn.

Stone, Gerald & Priestley, Tom. 1992. Carinthian Slovene in the Archives of the Deutscher Sprachatlas: Unpublished Materials. In *Oxford Slavonic Papers, New Series*, Vol. XXV, Catherine Mary Macrobert, G. S. Smith & G. C. Stone (eds), 84–119. Oxford: Clarendon Press.

Thieroff, Rolf. 2000. On the areal distribution of tense-aspect categories in Europe. In *Tense and aspect in the languages of Europe* [Empirical Approaches to Language Typology, EUROTYP 20–6], Östen Dahl (ed.), 265–305. Berlin: Mouton De Gruyter.

Waugh, Linda R. 1987. Marking time with the passé composé. Towards a theory of the perfect. *Lingvisticae Investigationes* 11(1): 1–47. https://doi.org/10.1075/li.11.1.02wau

Wenker, Georg. 1888–1923. *Sprachatlas des Deutschen Reichs*. Handgezeichnetes Original. Marburg.

The interaction of phonological and morphological variation in Zurich German

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Zurich German shows an intriguing case of variation in the inflectional paradigm of the indefinite article. This corpus-based study shows there are competing forms in the dative cell of the indefinite article. These forms can vary phonologically or morphologically depending on gender as well as syntactic factors. In this paper, a canonical approach is used to distinguish between these two different types of variation. Both shape conditioning and overabundance are briefly characterized and their co-occurrence in the same cell of an inflectional paradigm is discussed under the notion of higher order exceptionality.

1. Introduction

Zurich German, as well as the vast majority of Germanic varieties, has simplified its inflectional system drastically in comparison to earlier stages of Germanic languages.[1] The number of cells in the inflectional paradigms is considerably reduced. However, as it will be shown in the following, the number of cells and the number of forms do not have to correspond. Thus, the decrease of cells does not directly lead to a simplification. In Zurich German, there are two dative cells of the indefinite article (dative masculine and dative neuter are syncretic), yet there is a number of variants within the cells of dative feminine and dative masculine/neuter.

The reduction of the inflectional system in Zurich German is particularly prominent in nominal inflection. Nouns no longer inflect for case, but only for

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1. Zurich German is an Upper German dialect belonging to the group of High Alemannic dialects. They are widely spread in the Swiss German-speaking part of Switzerland. Zurich German is spoken roughly in the canton of Zurich, cf. Weber (1948), the most populated canton with the city of Zurich as an economic, cultural and educational center not only for the canton but also for the surrounding area.

number, cf. Weber (1948: 108).[2] Case and gender distinctions, however, are highly relevant for the pronominal and adjectival system, cf. Table 1, which gives the phrases 'a happy cat, a happy fox, a happy horse' in the singular. In the plural, the indefinite article is dropped and the adjective inflects identically for all genders, cf. Reese (2007).

Table 1. The inflection of indefinite NPs in the singular in Zurich German

	F	M	N
NOM/ACC	e zfridnigi Chatz	e zfridnige Fuchs	es zfridnigs Ross
DAT	(en)ere zfridnige Chatz	eme(ne) zfridnige Fuchs	eme(ne) zfridnige Ross

Even though a full gender distinction is only made in the nominative/accusative, the number of variants in the dative cell is higher than the one found in the nominative/accusative. The dative forms of the indefinite article in Table 1 correspond to the ones given in Schobinger (2008: 29–30) for NPs. Earlier accounts offer a more extensive paradigm. Weber (1923: 167) lists feminine *ənər(ə), ərə, rə* and masculine/neuter *əmə, amə(nə), ımə(nə), (ə)mənə, mə*. The dative forms in all genders can vary with respect to their number of consonants (DAT.F *(e)re*, DAT.M/N *(e)me* vs. DAT.F *ener(e)*, DAT.M/N *emene*) and with respect to their initial sound (vowel vs. consonant). In the dative feminine there also is some variation in the final sound of *ener(e)*, in the dative masculine/neuter some in the quality of the initial vowel.

 According to Weber (1923: 168) the forms lacking an initial vowel, DAT.M/N *mə, mənə* and DAT.F *rə*, are used after prepositions ending in a vowel. In Weber's (1948) more detailed description of Zurich German, it is assumed that:[3]

> Im Dativ kommen neben den zweisilbigen Formen *eme* und *ere* sehr häufig erweiterte Parallelformen vor: *eme-ne* und *en-ere*. Die kürzern herrschen alleine nach Präpositionen; für die übrigen Stellungen lässt sich keine Regel aufstellen, doch scheinen die kürzern überall da bevorzugt zu werden, wo sie eine flüssigere Aussprache begünstigen.   (Weber 1948: 105)

> [Apart from the disyllabic forms *eme* and *ere*, extended forms occur very frequently in the dative: *eme-ne* and *en-ere*. The shorter ones predominate post-prepositionally; for the other contexts no rules can be established, however, the shorter ones seem to be preferred in contexts facilitating the pronunciation. (*translation, AH)*]

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2.   In the *Sprachatlas der Deutschen Schweiz* (III.172), Zurich German belongs to an area with an overt dative plural suffix on nouns. Whether this is still used in modern Zurich German is unclear.

3.   Weber (1948) is based on Weber (1923); however, it is more normative than the older descriptive account.

From Weber's observation, two hypotheses can be deduced: First, forms in PPs are shorter than the ones in NPs (DAT.F *ere*, DAT.M/N *eme* vs. DAT.F *enere*, DAT.M/N *emene*). Second, the forms following a preposition with a word-final vowel are affected by apheresis (DAT.F *re*, DAT.M/N *me, mene*).

   In the following, it will be shown that the feminine and the masculine/neuter dative cells of the indefinite article, in fact, behave differently even though they seem to be comparable with regard to the number of forms, their structure and their contexts of occurrence. The two cells are subject to different types of variation. In the dative feminine, on the one hand, the forms attested in a corpus of modern spoken Zurich German are different phonological variants that appear under certain syntactic and phonological conditions. This phenomenon will be discussed under the notion of *shape conditioning* in Section 3.2. Examples (1)–(2) illustrate the post-prepositional variation in the cell of the dative feminine. Following a consonant, e.g. after the preposition *mit* 'with', the dative feminine of the indefinite article is *ere*, following a vowel, e.g. after *zu* 'to', the form is *nere*. The form *nere* is not listed as a possible inflectional form in earlier accounts of Zurich German, however, it is one of the most frequent forms in this cell, as the study of modern data reveals.

(1) | *De* | *Hund* | *schpil-t* | *mit=ere* | *Chatz.* |
| the.NOM.M.SG | dog | play-3SG.PRS.IND | with=a.DAT.F | cat |

   'The dog plays with a cat.'

(2) | *De* | *Hund* | *ränn-t* | *zu=nere* | *Chatz* | *ane.* |
| the.NOM.M.SG | dog | run-3SG.PRS.IND | towards=a.DAT.F | cat | to |

   'The dog runs towards a cat.'

The dative masculine/neuter, on the other hand, is not only affected by shape conditioning in its initial sound but shows several morphological forms and by this is an instance of *overabundance*. There are different inflectional forms that, moreover, can appear as different phonological variants. In this paper, this much more complex pattern is split into phonological variation and morphological variation. The phonological variation, on the one hand, affects the initial sound – as seen in the dative feminine. The morphological variation, on the other hand, affects the presence or absence of an additional suffix *-ne*. Only in the dative masculine/neuter, there is a morpho-syntactically fully specified form *eme* to which a suffix *-ne* can be added leading to morphological variation. This, however, does not apply to the dative feminine.

   In Section 2, the data used for this study are presented followed by a quantitative analysis of the dative forms of the indefinite article in Zurich German. Section 3 gives a very brief overview of canonical typology as well as of the notions of canonical inflection, shape conditioning, overabundance and higher-order exceptionality. In Section 4, the results are summarized. In Section 5, the conclusions that can be drawn from this case study are presented.

2. Methodology and data discussion

Since there was no corpus of Swiss German available when this study was carried out, I compiled a corpus specifically for it. I included two different sources: interviews from the oral-history project *Archimob* and episodes of the talk show *Schawinski.*

Archimob is the biggest oral-history project of Switzerland.[4] From 1999–2001 555 people from all over Switzerland were interviewed about their experiences during World War II. The interviews were checked with respect to their quality by Elvira Glaser and her team working in the project on dialect syntax of Swiss German (SADS) at the University of Zurich.[5] The choice of the interviews was made based on linguistic criteria and the suitability of the interviews for dialectological research. A number of them have already been transcribed by students, including the interviews in Zurich German.[6] Thus, in the corpus there are 10 interviews in Zurich German, each with a different speaker. The average length of the interviews is 1:41h and the corpus contains 252 tokens of the dative of the indefinite article, cf. Table 2.

Table 2. Number of tokens (dative of the indefinite article) in each corpus

	F	M	N	Total
Archimob	90	108	54	252
Schawinski	115	101	52	268
total	205	209	106	520

Schawinski is a weekly talk show with a Zurich German speaking host. The show is freely available online.[7] I have chosen all episodes from the time of February 2012 until November 2014 featuring a Zurich German speaking guest. Most of the guests are politicians, economic leaders or Swiss celebrities. Each interview is about half an hour long. In total, there are 27 interviews with 24 speakers and 268 tokens of the dative of the indefinite article, cf. Table 2. All the tokens were gathered in a Filemaker database (FileMaker Pro 15.0.1.119) and coded for a number of factors, cf. Table 3:

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4. *Archimob* project page <http://www.archimob.ch/d/ausstellung.html> (14 February 2018).

5. SADS project page <http://www.dialektsyntax.uzh.ch/de.html> (14 February 2018).

6. *ArchiMob* Corpus project page <https://www.spur.uzh.ch/en/departments/research/text-group/ArchiMob.html> (21 February 2018).

7. Homepage of the *Swiss Radio and Television* with all episodes of Schawinski <https://www.srf.ch/sendungen/schawinski> (14 February 2018).

Table 3. Factors included in the database

Linguistic level	Factor	Values
morphological	inflected forms	*enere*, *ere*, *nere* etc.
		emene, *eme*, *mene* etc.
morpho-syntactic	gender	F, M, N
syntactic	phrase	NP, PP
	preposition in the PP	*mit* 'with', *uf* 'on' etc.
	syntactic function	dative object, prepositional object, adverbial etc.
	further elements in the phrase	adjective, adverb etc.
	occurrence of an adjective (since adjectives are particularly frequent)	yes/no
phonological	preceding sound	vowel, consonant
	following sound	vowel, consonant
	occurrence of an epenthetic nasal before and after the article	yes/no
semantic	animacy	animate, inanimate, abstract

For the two different analyses presented in Sections 2.1 and 2.2 two different subsets were used. Section 2.1 deals with the variation of the initial sound of the article. As mentioned above, the dative forms can either have an initial vowel or consonant. Since this variable affects all genders, data of all three genders were included. All observations with one or more missing values of a variable were excluded (e.g. ambiguity between masculine and neuter articles with loan words).

In Section 2.2, all the feminine forms are excluded because they lack the variation of interest. Exclusively in the dative masculine/neuter, there is a morpho-syntactically fully specified form *eme* which can be extended by a suffix *-ne*. Section 2.2 deals with the occurrence of this particular suffix. Here again, observations with missing values were excluded. Furthermore, some values of certain variables are very infrequent, e.g. indirect objects, and could therefore not be included in the quantitative analysis.

Since both response variables (the word-initial sound and the presence of the suffix *-ne*) are categorical, general linear mixed models (GLMM) were conducted using R (version 3.4.3, RStudio version 1.1.383). Starting from a full model, non-significant factors were excluded. This stepwise backwards procedure was based on the single variable's AIC (Akaike information criterion). All the variables that proved to be statistically significant were then included in an optimized model. These models are presented in the two following sections.

2.1 Phonological variation

As mentioned in Section 1, there are forms of the indefinite article with an initial consonant (DAT.F *re*, DAT.M/N *me*) and forms with an initial vowel (DAT.F *ere, en-er(e)*, DAT.M/N *eme, emene*) in all genders.

It has been hypothesized that the forms with an initial consonant appear after a preposition with a word-final vowel, cf. Weber (1923: 168) and Section 1. In the following, this hypothesis is tested, and further possible factors affecting the distribution of article forms with an initial vowel or consonant are taken into account. It is checked in which contexts DAT.F *ere* and DAT.M/N *eme(ne)* and in which DAT.F *nere* and DAT.M/N *me(ne)* occur.

The effect of several linguistic factors on the article's initial segment (vowel vs. consonant) was tested using a generalized linear mixed model (GLMM). As fixed factors, I included gender (3 levels), the preceding sound (2 levels), the following sound (2 levels), phrase type (2 levels), complexity of the phrase (2 levels), occurrence of an adjective (2 levels) and animacy of the noun (3 levels). In order to account for differences between speakers, a random intercept for speaker was included in the model. Observations with one or more missing values were excluded from the analysis. The minimal model contained only statistically significant factors that were determined using a stepwise backwards procedure based on the AIC. The inclusion of the random intercept was justified as shown by likelihood ratio tests. Only the factors phrase type ($\chi^2 = 66.67$, $p < 0.001$, $df = 1$) and preceding sound ($\chi^2 = 5$, $p < 0.001$, $df = 1$) exhibited a significant effect.

Table 4 shows the number of forms with a word-initial vowel and their relative frequencies when the tokens are grouped according to the two significant variables. Following the structure of this table, first the forms attested in NPs are discussed and then the ones in PPs.

Table 4. Article forms with word-initial vowel – according to phrase type and preceding sound

Phrase	Preceding sound	Tokens (n)	Thereof with word-initial vowel	Relative frequency
NP	consonant	9	9	100%
	vowel	10	9	90%
PP	consonant	142	134	94%
	vowel	340	2	1%

2.1.1 *Dative forms in NPs*

With one exception, shown in (3), forms with an initial consonant are not attested in NPs.[8] Apart from this, these forms have a word-initial vowel which can be /ə/, e.g. (4), or – less frequent – /ɒ/, e.g. (5).

(3) *wie me   Berlusgooni*
like a.DAT.M Berlusconi
'like a Berlusconi'   (Ms205, Speaker 17)[9]

(4) *emene Koleeg*
a.DAT.M friend
'to a friend'   (Ms32, Speaker 6)

(5) *amene Barlamentaarier*
a.DAT.M member of parliament
'to a member of parliament'   (Ms248, Speaker 17)

In the descriptions of Zurich German, it is often implicitly assumed that in NPs the dative form starts with a vowel, cf. Table 1. It is mentioned that forms with initial consonants occur after certain prepositions, while other forms (i.e. forms with an initial vowel) appear elsewhere ["in den übrigen Stellungen"] (Weber 1948: 105).

2.1.2 *Dative forms in PPs*

In PPs, the forms are cliticized to the prepositions, cf. Nübling (1992: 231). In this context, dative forms of the indefinite article with both initial vowels and initial consonants are attested. The choice depends heavily on the preceding sound. Table 5 gives the most frequent forms in PPs with the relevant condition. Interestingly, the dative feminine form *re*, which is mentioned in earlier accounts of Zurich German, is missing. Instead *nere* is very frequent, a form that is not mentioned in the literature on this dialect. In the masculine/neuter cell of the dative, there is another form among the most frequent ones which only appears in the empirical data: *mne.*

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8.   In this phrase, two other factors might play a role: First, *wie* is not a preposition, but a subjunction, as Elvira Glaser pointed out. Second, proper names such as *Berlusconi* might behave differently, as suggested by an anonymous reviewer. Based on the data used in this study, however, no further conclusions can be drawn.

9.   The tokens are all numbered: *Schawinski* = Ms, *Archimob* = Ma.

Table 5. Variation in the dative singular cell of the indefinite article in PPs

	Preceded by a vowel		Preceded by a consonant	
F	*nere*	136	*ere*	49
M/N	*mene*	112	*eme*	68
	me	55		
	mne	21		

The segmentation of the longer dative feminine form *nere* is ambiguous: Either it is a variant of an underlying form *enere* that underwent elision[10] or it is the shorter form *ere* with an additional epenthetic nasal: *n-ere*. The epenthetic nasal /n/ prevents hiatus positions and it is well attested not only in Zurich German, but in all Swiss German dialects, cf. Moulton (1986), Fleischer & Schmid (2006), Reese (2007). This nasal is always /n/. In some cases, it is etymological, e.g. *vo* 'of' vs. *von im* 'of him'. However, it also appears in contexts where there never has been a nasal, e.g. *zu* 'to' vs. *zun im* 'to him'. In most cases, apart from a few constructions such as *han i* 'I have' (in inverted position), it is optional.

The interpretation of *nere* as a reduced form of *enere* is supported by the dative masculine/neuter. The forms DAT.M/N *me, mene* clearly are reduced forms of *eme, emene* since there is no epenthetic /m/ in Zurich German. However, the segmentation of *nere* as *n-ere* is equally plausible since *nere* only occurs when preceded by a vowel. The nasal would prevent a hiatus of a vowel and the article form DAT.F *ere*. Thus, synchronically both analyses of dative feminine *nere* are equally possible.

Table 4 indicates that the distribution of forms with initial vowels and initial consonants is not random in PPs, but depends heavily on the preceding sound: Following vowels, the article exhibits a consonant word-initially and *vice versa*. In the two different phonological contexts, few exceptions to this distribution are attested.

If preceded by a consonant, the article exhibits an initial consonant only eight times out of 142, e.g. (6), whereas all other instances show a vowel, e.g. (7).

(6) *uf=mene   Hügel*
     on=a.DAT.M hill
     'on a hill'   (Ms17, Speaker 5)

(7) *uf=eme   Fuesbalplaz*
     on=a.DAT.M football pitch
     'on a football pitch'   (Ms169, Speaker 21)

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10. This form, *enere*, does not occur post-prepositionally, yet it is attested in NPs, cf. *enere zfridnige Chatz* in Table 1.

If preceded by a vowel, there is a clear preference for consonant initial forms with only two exceptions, (8)–(9). In (8), there is a short pause between the preposition and the article, in (9) stressed *je* 'ever' is inserted. This seems to prevent the article of becoming clitic.

(8) *wäge   emene   Sekretäär*
    because of a.DAT.M   secretary
    'because of a secretary'   (Ma324, Speaker 29)

(9) *vo je   emene*   Prömieeminischter
    of ever a.DAT.M   prime minister
    'of any prime minister ever'   (Ms200, Speaker 17)

Again, these results coincide with the hypotheses given in the aforementioned dialect descriptions. The initial sound of the dative indefinite article in post-prepositional contexts depends on the preceding sound: forms with an initial vowel occur after a consonant and *vice versa*.

These results can be summarized as follows. First, the number of variants depends on the syntactic phrase. There are more variants attested in PPs which might also be due to the higher number of overall tokens of PPs in relation to NPs. In this position, the preceding sound has a very strong effect on the initial sound of the indefinite article leading to two sets of article forms: those with an initial vowel and those with an initial consonant. In the corpus, no clitic forms in NPs are attested although they can be heard in modern day Zurich German for instance after the adverb *so* 'such'. This adverb is mostly followed by consonant initial forms such as DAT.F *sonere* and DAT.M/N *some(ne).* This insensitivity towards word class and construction proves that there is a difference between clitic and non-clitic forms rather than between forms in PPs and in NPs. Since most of the article forms are clitic in the former and non-clitic in the latter, the difference appears to be connected to the syntactic phrase. Due to the lack of data of articles in NPs, however, it is difficult to make valid statements. Second, the patterns found in PPs are a clear instance of shape conditioning. The preceding sound triggers the initial sound of the article.

While this fully explains the distribution of the dative feminine forms, the dative masculine/neuter forms cannot only be grouped according to their initial sound, but also as to whether the suffix *-ne* is realized or not: *eme, me* vs. *emene, mene.* This variation is morphological, rather than phonological because there is no reason to assume a phonological process in Swiss German adding or deleting a final syllable *-ne*.

2.2   Morphological variation

The suffix -*ne* is only found with dative masculine/neuter forms of the indefinite article.[11] Accordingly, all the dative feminine forms are excluded from the corpus. Furthermore, the forms in NPs were excluded because of their very low frequency in this reduced data set.

The effect of several linguistic factors on the presence or absence of -*ne* was again tested using GLMM. As fixed factors, I included gender (2 levels), the initial sound of the article form (2 levels), the sound preceding the article (2 levels), the sound following the article (2 levels), occurrence of an epenthetic nasal following the article (2 levels), syntactic function (3 levels), complexity of the phrase (2 levels), occurrence of an adjective (2 levels) and animacy of the noun (3 levels). A random intercept for speaker was included in the model in order to account for differences between speakers. Observations with one or more missing values were excluded from the analysis. The minimal model contained only statistically significant factors that were determined using a stepwise backwards procedure based on the AIC. The inclusion of the random intercept was justified as shown by likelihood ratio tests. Two factors exhibited a significant effect on the presence or absence of -*ne*: the sound preceding the article ($\chi^2 = 97.703$, $p < 0.001$, $df = 1$) and the epenthetic nasal ($\chi^2 = 12.457$, $p < 0.001$, $df = 1$). The initial sound of the article form itself failed to attain statistical significance ($\chi^2 = 3.7586$, $p > 0.05$, $df = 1$).

Table 6 gives the occurrence of forms with the suffix -*ne* in the different contexts defined by the significant variables.

Table 6. Article forms showing the suffix -*ne*

Preceding sound	Epenthetic nasal	Tokens (n)	Thereof with -*ne*	Relative frequency
consonant	yes	7	0	0%
	no	84	13	15.5%
vowel	yes	22	11	50%
	no	179	133	74.3%

The occurrence of the suffix -*ne* is phonologically conditioned, namely by the adjacent segments: the preceding sound and the presence of an epenthetic nasal.

– C=*eme(-n)*
– C=*emene*

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11. In the inflectional system of pronouns that do inflect for number, e.g. possessive pronouns, it occurs in the dative plural.

- **C=emene(-n)*
- V=*me(-n)*
- V=*mene(-n)*

If preceded by a consonant, the article shows either an epenthetic nasal or the suffix, cf. (10)–(11). If preceded by a vowel, forms with the suffix, (12)–(13), and without the suffix, (14)–(15), are attested each with and without an epenthetic nasal.[12]

(10) *nach=emen   Uuftrit*
      after=a.DAT.M gig
      'after a gig'   (Ms 67, Speaker 11)

(11) *vor=emene   Uuftrit*
      before=a.DAT.M gig
      'before a gig'   (Ms 68, Speaker 11)

(12) *vo=menen italiänische   Päärli*
      of=a.DAT.N Italian.DAT.N.SG couple
      'of an Italian couple'   (Ms 36, Speaker 7)

(13) *vo=mene   änglische   Schurnalischt*
      of=a.DAT.M English.DAT.M.SG journalist
      'of an English journalist'   (Ms197, Speaker 17)

(14) *a=men   andere   Oort*
      at=a.DAT.M different.DAT.M.SG place
      'at a different place'   (Ms148, Speaker 4)

(15) *i=me   andere   Schpitaal*
      in=a.DAT.M different.DAT.M.SG hospital
      'in a different hospital'   (Ms273, Speaker 4)

Hence, there is a clear preference for suffixless forms in contexts where a consonant precedes the article and a preference for suffixed forms when a vowel precedes the article. Following a vowel, however, the variance is more extensive with the ratio ranging from 1:1 (with epenthesis) to 1:3 (without epenthesis). This has two implications. First, forms with and without suffix do not vary freely. As Table 7 shows, there is a dominant form in every context, yet, in most of them there are other variants attested. If preceded by a vowel and not followed by an epenthetic nasal, forms with suffix predominate. However, more than a third of the articles in this context do not show the suffix. Second, the phonological conditions do not only affect the choice of the form, but also the quantitative degree to which other variants occur.

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12. I.e. an epenthetic nasal can only occur, if the article has two syllables or less. Thus, it is not possible after *emene*.

Table 7. Dative masculine/neuter of the indefinite article in PPs

	Preceded by a vowel		Preceded by a consonant	
+ Epenthesis	*me*	11	*eme*	6
	mene	8		
– Epenthesis	*mene*	104	*eme*	63
	mne	18	*emene*	7
	me	45		

Table 7 lists the most frequent forms found in the different contexts. The present data does not support the hypothesis put forward by Reese (2007: 19) and Schobinger (2007: 52) that *mene* is the only form used after a vowel. Even though *mene* is the most frequent one, there still is a considerable number of the suffixless form *me*. That means that the older descriptions, which list forms such as *a=me* and *a=mene* 'on=a. DAT.M/N', give a more precise account of the facts, cf. Weber (1948: 105).

In NPs, there are 10 forms with the suffix (*emene* and once *emne*) and 4 without it (*eme* and once *me*). Thus, suffixless forms are much less frequent in NPs, yet the assumption of Weber (1948: 105) that post-prepositionally the shorter forms (DAT.M/N *eme*, DAT.F *ere*) are exclusively found does not hold. In the dative feminine, however, there are indeed only longer forms to be found in NPs (five instances of *enere*).

3. Theoretical framework

The interpretation of these results is set in the framework of canonical typology. Canonical typology is an approach in typology aiming at capturing phenomena in a way that makes it possible to compare occurrences of them cross-linguistically. Thus, canonical typology enables us to make statements about how frequent a phenomenon is even if we compare typologically or genetically diverse languages.

In a canonical approach, first, the canonical instance is defined, and then, a number of parameters forming a multi-dimensional space are set in which empirical data can be placed. The ones closer to the centre are more canonical, the ones further away from it deviate from canonicity with regard to one or multiple parameters. The canonical case is not the same as a prototype, cf. Brown & Chumakina (2013: 13). It is not assumed that it is particularly frequent and it even might be that it is not attested at all, cf. Corbett (2005: 26).

In the following, canonical inflection is characterized very briefly and two deviations of it are presented: shape conditioning and overabundance. Canonical typology is useful to show which features these two phenomena share and how they interact in the case at hand. Finally, their interaction is described as a case of higher-order exceptionality.

3.1 Canonical inflectional system

A canonical inflectional system can be defined along two lines: the relation between different inflectional forms of a single lexeme and the relation between the inflection of different lexemes, cf. Table 8.

Table 8. Canonical inflection (Corbett 2007a: 9)

	Comparison across *cells* **of a lexeme**	**Comparison across** *lexemes*
Composition/Structure	same	same
Lexical material (≈ shape of stem)	same	different
Inflectional material (≈ shape of inflection)	different	same
Outcome (≈ shape of inflected word)	different	different

The second column lists the canonical inflectional behavior of a single lexeme. If a lexeme inflects canonically, the forms in all of the cells of the paradigm share the same structure, i.e. if one of them is affixed but shows no stem change, all the others do so. All of the forms share the same stem, but differ in their inflectional exponents. As a result, all the cells of the paradigm are distinct, however, the structure of the single form is transparent.

The third column lists the characteristics of canonical inflection of different lexemes. They still share the same structure, if one lexeme is inflected by ablaut, the other lexemes are so, too. Different lexemes show the same exponent in a specific cell. However, their stem is different which then ensures that the inflected forms of different lexemes are kept distinct.

The canonical inflectional system represents only a theoretical endpoint of a scale along which all the inflectional systems found in the languages of the world can be arranged. The canonical system is not expected to occur frequently and – as always assumed for the canonical case of a phenomenon – it is possibly not attested at all. There is a considerable number of deviations from the canonical inflectional system, among them suppletion, where the stem of a single lexeme changes between cells, e.g. Corbett (2007a), syncretism, where the cells of a single lexeme are no longer distinct, e.g. Corbett (2007b), or deponency, where the same exponents can be used for the active or passive voice depending on the lexeme, e.g. Baerman (2007).

In the following, two other deviations of canonical inflection are to be discussed. In the case of shape conditioning, the phonological form of a single lexeme depends on the context where it appears, in the case of overabundance, a cell is filled with more than one inflectional form. Both cases have in common that more than one (phonological or morphological) form can be assigned to a single cell of a paradigm.

3.2 Shape conditioning

If a lexeme undergoes shape conditioning, it changes its phonological form according to its context, e.g. syntactic.[13] A classic example with a phonological condition is the indefinite article in English which is *a* when followed by consonant and *an* when followed by a vowel. Even though a number of cases is reported where the phonological context triggers the use of a certain shape – as in the example of the English indefinite article – shape conditioning can also concern other linguistic levels; for instance, it can be based on morpho-syntactic triggers as in initial consonant mutation in Welsh, cf. Ball & Müller (1992). Furthermore, it does not have to be as strict as in the example of the indefinite article in English where there are hardly any exceptions.

Canonical shape conditioning and the parameters needed to classify empirical data are still to be properly defined. A first proposal was given by Thornton (2011b). For the case found in Zurich German, the most important criterion is Criterion 1.[14]

> *Criterion 1:* triggered shapes occur in all the syntactic environments which meet the relevant phonological conditions > triggered shapes occur only if trigger and target entertain a specific syntactic relation

Thus, conditioning that is purely phonological is more canonical than conditioning that is syntactic, e.g. depending on part of speech.

The Zurich German data presented above show, with respect to Thornton (2011b), a rather classic (yet not canonical) example of shape conditioning. The trigger lies in the immediate phonological context, only the edge of the target word is affected and there are hardly any exceptions. This instance of shape conditioning in Zurich German is not canonical, though, because it has to be ranked lower with respect to the parameter given in Criterion 1. Shape conditioning only affects post-prepositional forms – or clitics as suggested in Section 2.1.2.[15]

It is, however, beyond the scope of this paper to offer an exhaustive definition of shape conditioning. Rather, it focuses on the similarities between shape conditioning

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13. The conditioning factor is often called the *trigger*, the changing form the *target* of shape conditioning.

14. Where > is to be read as 'more canonical'

15. As a reviewer rightly pointed out, the canonicity of this instance of shape conditioning depends on whether the trigger is clitic position rather than post-prepositional position. Cliticized forms of the indefinite article occur not only in PPs, but also in NPs, e.g. after the adverb *so*, cf. Section 2.1.2. Thus, the number of syntactic contexts is higher if clitic position is assumed to be the trigger. However, more data is needed to make valid statements about shape conditioning of the indefinite article in NPs.

and overabundance, as well as on the way they interact in Zurich German since they both affect the same cell of the paradigm as Sections 2.1 and 2.2 reveal.

In canonical inflection, we expect a cell of a paradigm to be filled with one invariable form. In shape conditioning – as well as in overabundance – this does not hold. In both phenomena, a paradigm cell is populated by more than one form.

Both phenomena differ in the nature of this population, more specifically, in shape conditioning, the form changes its phonological shape based on its context, while in overabundance, two or more inflectional forms co-occur. In the canonical case, the shapes are completely conditioned by their context, overabundant cells, however, are not subject to any conditioning.

Both phenomena have in common that the different shapes and the different cell-mates do not differ in their grammatical or lexical meaning.

3.3   Overabundance

An inflectional cell is usually filled by one single form. In an overabundant paradigm, however, a cell is not filled by one but by several forms. Even though the notion of overabundance is rather new, recent research suggests that it is not restricted to a specific language or a cell of a paradigm, e.g. Kaye (2007) for Modern Standard Arabic, Fehringer (2011) for German, Bošnjak Botica & Hržica (2016) for Croatian.

Thornton (2011a) offers a thorough presentation of the canonical approach to this phenomenon. Overabundance is canonical when the forms are completely interchangeable. This means they are equally frequent in all contexts independent of any language-internal conditions and speaker-related as well as conversation-specific characteristics. This summarizes both factors such as the syntactic or phonological context as well as diatopic, diastratic, diachronic, diamesic and diaphasic conditions.

Two of the parameters defined by Thornton (2011a) are of particular relevance for the analysis of the variation of the indefinite article in Zurich German: Overabundance is more canonical if the cell-mates are equally frequent and if there are no conditions leading to the choice of one form over the other, cf. Criterion 2, and if the same cell is not overabundant in parallel paradigms, cf. Criterion 3.

> *Criterion 2*: no conditions > conditions
>
> *Criterion 3:* unparalleled doublets > parallel doublets in several paradigms

As shown above, in Zurich German there are conditions that favor a certain form which makes it a less canonical case according to Thornton's Criterion 2. However, in many contexts there still is a certain degree of variation. This, on the other hand, suggests that conditioning can work in two different ways: First, it can condition

the *use* of a form. Second, it can condition the quantitative *degree of variation*. This is a kind of conditioning that has apparently not been included in the definition of canonical overabundance so far.

When it comes to the cell affected by overabundance (Thornton's Criterion 3), the indefinite article in Zurich German is canonical because overabundance occurs in the dative masculine/neuter cell only and not in the feminine cell.[16]

3.4   Higher-order exceptionality

As Sections 2.1 and 2.2 show, the phonological context is of particular relevance for the phonological and the morphological variation in the dative masculine/neuter paradigm of the indefinite article in Zurich German. An important factor for both is the preceding sound. It has been shown that the degree of conditioning as well as the linguistic level showing variation differ between the two kinds of variation. Yet, they still affect the same inflectional cell.

Such an interaction of several non-canonical phenomena is called higher-order exceptionality, cf. Corbett (2011). Shape conditioning (affecting the presence or absence of an initial vowel) and overabundance (affecting the presence or absence of the suffix *-ne*) deviate in a similar way from canonical inflection. Thus, it seems likely that they can co-occur. In canonical inflection, we expect one form with a specific morphological function and we expect this form to be invariant. Both phenomena – shape conditioning and overabundance – violate this requirement of a single, invariant form in a cell of a paradigm.

This, however, does not mean that they are one and the same phenomenon. The main difference between overabundance and shape conditioning is the role of the context and the linguistic level on which the variants operate. As the term suggests, shape conditioning cannot occur without any conditioning factors. There might be exceptions where a target is not fully affected by the trigger. Yet, shape conditioning means that the context in which a form appears affects its phonological form. In overabundance, conditions are optional. If overabundance is canonical, there are no conditions at all.

Shape conditioning is more canonical if the conditioning is complete as compared to cases where exceptions occur. As already pointed out, the canonical case might be rare, if existing at all. If there are any conditions in overabundance, they can trigger a certain preference of one cell-mate over the other or they can fully define the choice of one of the cell-mates. Furthermore, the conditions of overabundance do not have to be language-internal. The conditions can be syntactical

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16. Remember that dative masculine and neuter of the indefinite article are syncretic.

or semantic, for instance, but they can also be sociolinguistic in nature. This does not mean that the cell-mates do not occur in the grammar of a single speaker. A speaker's grammar can have different cell-mates and their use, or merely their frequency, might be based on the conversational situation. The inflection of German *Herz* 'heart' as described in grammatical guidebooks is overabundant in the genitive cell. It mostly inflects weakly (GEN.SG *Herzens*, DAT.SG *Herzen*), yet if used in a medical context it may have forms of the strong inflection as cell-mates (GEN.SG *Herzes*, DAT.SG *Herz*), cf. Hennig (2016: 454).

The other important difference is that shape conditioning affects the phonological form while overabundance is a morphological phenomenon. In the case of shapes, the phonological processes at work can be very different. In Welsh initial consonant mutation, for example, there are three different processes: lenition, aspiration and nasalization, cf. Ball & Müller (1992). In Zurich German, the initial sound of the dative of the indefinite article is affected. Cell-mates on the other hand are different inflectional forms such as the varying dative masculine/neuter forms *eme* and *emene*, the latter with an additional suffix *-ne*.

When shape conditioning and overabundance affect the same cell, it is important to differentiate between the actual cell-mates, i.e. the inflectional forms that fill the cell of the paradigm, and their shapes, i.e. the different phonological shapes they can take.

4.   Results

The data discussed in Section 2 reveal two non-canonical phenomena in the inflection of the indefinite article in Zurich German. While in the dative feminine cell, only shape conditioning is attested (C-*ere* vs. V-*nere*), in the dative masculine and neuter, one and the same cell is affected by both (C-*eme(ne)* vs. V-*me(ne)*) which makes it a case of higher-order exceptionality.

With regards to overabundance, the instance in Zurich German is more canonical because we do not find overabundant dative cells of the indefinite article for all the genders. A corresponding parameter for canonical shape conditioning still has to be defined. It is expected, though, that canonical shape conditioning occurs with all the forms sharing certain phonological features, i.e. the target can undergo the same phonological processes, and syntactic or semantic features, i.e. features that are part of the trigger causing shape conditioning. Morphosyntactic or morphological features, like gender or inflectional class, should not affect canonical shape conditioning. This would make shape conditioning in Zurich German canonical because gender does not influence it.

The analysis of the distribution of the suffix *-ne* as overabundance has shed some light on the mechanism at work in Zurich German, but has some wider theoretical impact too. There clearly are phonological conditions affecting the occurrence of the suffix in article forms in PPs; if the article is preceded by a consonant, the suffix is very rare. This reduces the degree of canonicity. Following a vowel, forms with the suffix are more frequent but there still is a considerable amount of variation. This means that there is phonological conditioning, not only of the occurrence of the suffix itself but also of the existence of varying forms. There are contexts where more variation can be found than in others. Therefore, an additional criterion for defining overabundance seems to be called for:

> *Criterion 4:* cell-mates vary in all contexts > cell-mates vary in a few restricted contexts

Here additional research is needed to see whether there are any cases with a 1:1 ratio between cell-mates in certain contexts while in other contexts the ratio is smaller or only one form is attested.

In this sense, defining the canonicity of *(e)me ≈ (e)mene* is not trivial. As the analysis of the corpus data reveals the ratio between the cell-mates depends on their contexts. There is less variation after a consonant than after a vowel.

When it comes to the interaction between the two phenomena, shape conditioning regarding the presence/absence of an initial vowel and overabundance regarding suffixation with *-ne*, it is striking that both are affected by the same conditions. However, this does not reduce the variation; as Table 7 illustrates, the cell-mates occur in different shapes. If we assume the vowel initial forms as underlying, we find the cell-mates *eme* and *emene* with their additional shapes *me* and *mene*.

In the current case, it is particularly interesting that overabundance and shape conditioning are affected by the same phonological factors, yet they still show different patterns. While there barely are any exceptions when it comes to shape conditioning, overabundance is not that neat.

This shows how crucial it is to examine different kinds of variation. Even if the same cell is affected and even if the same conditions are relevant, this does not mean that only overabundance or only shape conditioning are at play. This is of particular importance with respect to Criterion 1.

If dative masculine/neuter *eme, me, emene, mene* are all seen as cell-mates, this makes it a highly canonical instance of overabundance, yet not all of them have the same status as shown in this study.

As a consequence of this instance of higher-order exceptionality, the paradigm of the indefinite article in Zurich German is much more complex than assumed in earlier accounts of this dialect. The dative feminine and the dative masculine/

neuter differ from each other. The feminine paradigm shows different shapes, the masculine/neuter paradigm shows different shapes of different cell-mates.

5.   Conclusions

This case study shows a number of things. Not surprisingly, corpus studies give a much more fine-grained picture of the actual make-up of a paradigm.

The analysis of empirical data has shown that there is not simply one underlying form which can vary to a certain degree. As described above, shapes and cell-mates are not the same.

Not only is the paradigm more complex but complexity can lie within a single cell. In the current case, phonological features are relevant for the phonological as well as the morphological form of the article.

There is an additional layer of complexity regarding gender since the different genders do not behave in the same way. They are not subject to the same kind of variation.

Altogether, this shows how important the distinction between phonological and morphological variation is. Even though shape conditioning and overabundance are subject to the same conditions, the degree of conditioning is different as well as the linguistic level affected by them.

References

Baerman, Matthew. 2007. Morphological typology of deponency. In *Deponency and Morphological Mismatches* [Proceedings of the British Academy 145], Matthew Baerman, Greville Corbett, Dunstan Brown & Andrew Hippisley (eds), 1–19. Oxford: OUP.
  https://doi.org/10.5871/bacad/9780197264102.001.0001
Ball, Martin J. & Müller, Nicole. 1992. *Mutation in Welsh*. London: Routledge.
  https://doi.org/10.4324/9780203192764
Bošnjak Botica, Tomislava & Hržica, Gordana. 2016. Overabundance in Croatian dual-class verbs. *Fluminensia* 28(1): 83–106.

Brown, Dunstan & Chumakina, Marina. 2013. What there might be and what there is: an introduction to canonical typology. In *Canonical Morphology and Syntax*, Dunstan Brown, Marina Chumakina & Greville Corbett (eds), 1–19. Oxford: OUP.

Corbett, Greville. 2005. The canonical approach in typology. In *Linguistic Diversity and Language Theories* [Studies in Language Companion Series 72], Zygmunt Frajzyngier, Adam Hodges & David S. Rood (eds), 25–49. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.72.03cor

Corbett, Greville. 2007a. Canonical typology, suppletion and possible words. *Language* 83(1): 8–42. https://doi.org/10.1353/lan.2007.0006

Corbett, Greville. 2007b. Deponency, syncretism, and what lies between. In *Deponency and Morphological Mismatches* [Proceedings of the British Academy 145], Greville Corbett, Dunstan Brown & Andrew Hippisley (eds), 21–43. Oxford: OUP. https://doi.org/10.5871/bacad/9780197264102.003.0002

Corbett, Greville. 2011. Higher order exceptionality in inflectional morphology. In *Expecting the Unexpected* [Trends in Linguistics. Studies and Monographs 216], Horst J. Simon & Heike Wiese (eds), 107–126. Berlin: De Gruyter. https://doi.org/10.1515/9783110219098.107

Fehringer, Carol. 2011. Allomorphy in the German genitive. A paradigmatic account. *Zeitschrift für Germanistische Linguistik* 39: 90–112. https://doi.org/10.1515/zgl.2011.005

Fleischer, Jürg & Schmid, Stephan. 2006. Zurich German. *Journal of the International Phonetic Association* 36(2): 243–255. https://doi.org/10.1017/S0025100306002441

Hennig, Mathilde (ed.). 2016. *Duden – Das Wörterbuch der sprachlichen Zweifelsfälle. Richtiges und gutes Deutsch*, 8th edn. Berlin: Dudenverlag.

Hotzenköcherle, Rudolf. 1975. *Sprachatlas der deutschen Schweiz, Band III: Formengeographie*. Bern: Francke.

Kaye, Alan S. 2007. *Arabic morphology*. In *Morphologies of Asia and Africa*, Alan S. Kaye (ed.), 211–247. Winona Lake IN: Eisenbrauns.

Moulton, William G. 1986. Sandhi in Swiss German dialects. In *Sandhi Phenomena in the Languages of Europe*, Henning Andersen (ed.), 385–392. Berlin: De Gruyter. https://doi.org/10.1515/9783110858532.385

Nübling, Damaris. 1992. *Klitika im Deutschen: Schriftsprache, Umgangssprache, alemannische Dialekte* [Script-Oralia 42]. Tübingen: Narr.

Reese, Johannes. 2007. *Swiss German: The Modern Alemannic Vernacular in and around Zurich*. Munich: Lincom.

Schobinger, Viktor. 2007. *Zürichdeutsche Kurzgrammatik*, 3rd edn. Zurich: Schobinger.

Schobinger, Viktor. 2008. *Säit me soo oder andersch? Dialäkt zum Naaschlaa wien im Wörterbuech*, 5th edn. Zurich: Schobinger.

Thornton, Anna. 2011a. Overabundance (multiple forms realizing the same cell): A non-canonical phenomenon in Italian verb morphology. In *Morphological autonomy*, Martin Maiden, John Charles Smith, Maria Goldbach & Marc-Olivier Hinzelin (eds), 358–381. Oxford: OUP.

Thornton, Anna. 2011b, April 08. Shape conditions and paradigms. Unpublished lecture notes, University of Surrey, Guildford, UK.

Weber, Albert. 1923. *Die Mundart des Zürcher Oberlandes* [Beiträge zur Schweizerdeutschen Grammatik 15]. Frauenfeld: Huber.

Weber, Albert. 1948. *Zürichdeutsche Grammatik: Ein Wegweiser zur guten Mundart* [Grammatiken und Wörterbücher des Schweizerdeutschen in allgemeinverständlicher Darstellung 1]. Zurich: Schweizer Spiegel Verlag.

Negative concord in Alemannic

An OT-approach at the syntax-morphology interface

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The article focuses on variation in negative concord (NC) between and within the grammars of speakers of Alemannic. Based on a broad data set, partial grammars from individuals are extracted, and four different systems are attested: Grammar 1 with obligatory negative spread (N-spread), Grammar 2 with optional negative doubling (N-doubling), Grammar 3 with N-spread and N-doubling, and Grammar 4 without NC. My proposal in the framework of Optimality Theory (OT) is based upon two assumptions: the generation of syntactic structures is unmarked in comparison to the generation of morphological structures (cf. Ackema & Neeleman 2001; Vogel 2006); weak indefinites and negative indefinites (n-indefinites) are not different lexemes, but only allomorphs (cf. Weiß 2002a).

1. Introduction

In many languages, two or more negative markers can co-occur within one clause that is interpreted as containing just one single semantic negation. This phenomenon is called negative concord (NC). NC can take different syntactic shapes, notably the co-occurrence of several n-indefinites and the co-occurrence of the sentential negation and an n-indefinite (cf. den Besten 1986; van der Wouden & Zwarts 1993). These two types are called N-spread (1) and N-doubling (2) (cf. den Besten 1986: 205). In (1) the negative feature is "spread" or distributed over any number of indefinite expressions within its scope; in (2) an n-indefinite appears together with a negation particle (words in bold by AM, in the original underlined, cf. den Besten 1986: 205):[1]

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1. In the following examples/citations I highlight the NC pattern in bold type. (Alemannic) examples/citations were translated into English by AM (unless otherwise noted).

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(1) *Ik win **nooit niks.***
     I   gain never nothing
     'I never gain anything.'   (Drechterland, Netherlands)

(2) *Hedde   nog **nuut** da   gruut batiment **nie** gezien in de*
     Have-you yet   never that big   building   not   seen   in   the
     Plateau-straote?
     Plateau-street
     'Have you yet never seen that big building in the Plateaustreet?'

                                                            (Ghent, Belgium)

To be precise, den Besten (1986: 205) differentiates between two N-doubling types: the one in Afrikaans is called "Negative Doubling", the one in West-Germanic (e.g. in non-standard Dutch and German) "Negative Doubling proper".[2] As this distinction is not relevant for my paper as well as for reasons of simplicity I will only use the term "negative doubling" to describe the NC type in (2). Up to now, (typological) studies on NC have mainly focused on N-doubling: *The World Atlas of Language Structure* (WALS) only refers to the co-occurrence of n-indefinites with predicate negation, i.e. N-doubling (cf. Haspelmath 2005). The *electronic World Atlas of Varieties of English* (eWAVE) mentions both N-spread and N-doubling but the map showing the areal distribution does not distinguish between the two types (cf. Kortmann & Lunkenheimer 2013: Feature 154). Zeijlstra (2004: 63) claims in his work on NC that all NC languages exhibit both N-spread and N-doubling, and Haspelmath (1997: 220) assumes a similar typological correlation. My examination on NC in Alemannic, however, shows a much more nuanced picture: The majority of Alemannic speakers use N-spread as their only negation strategy, few of them use N-doubling (those that are speakers of Swabian, an Alemannic variety which is geographically close to Bavarian, cf. Moser subm.), and still fewer of them use both structures. Similar observations have recently been made in the context of the project *Syntax hessischer Dialekte* (SyHD) where the majority of speakers only use N-spread (cf. Weiß 2017) as well as for Middle Low German (cf. Breitbarth 2014: 151). Against this background, my article aims at refining previous assumptions as regards NC in language typology as well as in syntactic theory.

Before now continuing with the organization of the article I will shortly introduce and define the most important terms related to NC. There is a confusing diversity of terms in German that label NC such as "Doppelnegation/doppelte Negation" 'double negation', "Negationskongruenz" 'negative concord' or "Mehrfachnegation"

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2.   Den Besten introduces the two different terms as N-doubling in Afrikaans is structurally different from N-doubling in West-Germanic.

'multiple negation'. The first, however, is generally used to identify the opposite phenomenon, that is, two occurring negative markers that cancel each other out semantically: the sentence is truth-conditionally equivalent to an affirmative one, as in propositional logic where two negatives equal a positive: $\neg \neg p \leftrightarrow p$ (cf. Willis, Lucas & Breitbarth 2013: 30). I will use the term "double negation" (DN) to refer to this kind of interpretation, that is, a positive reading. The latter two usually describe N-doubling and/or N-spread. In the following I will refer to NC as a hypernym and to N-doubling and N-spread as its hyponyms as this is in my opinion both the simplest and the most clear-cut solution to classify NC structures (see 3.5). With regard to n-indefinites the term is used to describe the Alemannic lexical items *niama* 'nobody', *nicks* 'nothing', *koa* 'no/no one' (as determiner or pronoun), *nia* 'never' and *niana* 'nowhere'. Table 1 (after Penka 2011: 1) shows the inventory of n-indefinites in some languages.

Table 1. Inventory of n-indefinites

	Alemannic	German	English	Italian	French	Polish
person	*niama*	*niemand*	*nobody*	*nessuno*	*personne*	*nikt*
thing	*nicks*	*nichts*	*nothing*	*niente*	*rien*	*nic*
time	*nia*	*nie(mals)*	*never*	*mai*	*jamais*	*nigdy*
place	*niana*	*nirgendwo*	*nowhere*	–	–	*nigdzie*
manner	–	–	–	–	–	*nijak*
DET	*koa*	*kein*	*no*	*nessuno*	*aucun*	*żaden*

The term n-indefinite is used in a purely descriptive way and should not be seen as making a claim about the nature of these expressions, that is, their (non)quantifica-tional force, their (im)possibility to participate in negation in NC/DN languages, or their nature as regards their semantics. I will come to this in detail in Section 3.1.

The organization of this paper is as follows: After having presented the findings of my investigation in Section 2, I continue with an explanation for the four differ-ent speaker grammars that are attested in Alemannic. I first discuss two major issues with respect to NC, namely the semantic and syntactic behavior of n-indefinites in Section 3.1 and the syntax of NC in Section 3.2. I then model NC in Alemannic in the framework of Optimality Theory (Section 3.3) and conclude the third part with a summary (Section 3.4) before I present some thoughts on the (re)classification of NC. The article ends with the obligatory conclusion.

2.   Data

Alemannic is spoken in the Southwest of Germany (in Baden-Württemberg and in the westernmost part of Bavaria), in Vorarlberg in Austria, in Alsace in France, in Liechtenstein and in German-speaking Switzerland. This dialect region can be sub-divided into Upper Rhine Alemannic, Lake Constance Alemannic, Swabian, High Alemannic and Highest Alemannic whereby my data includes evidence from all varieties except Highest Alemannic. This classification goes back to Wiesinger (1983) and was extended by the subclassification of Lower Alemannic into Upper Rhine Alemannic and Lake Constance Alemannic (cf. Klausmann, Kunze & Schrambke 1997: 30–31 who refer to Steger & Jakob 1983).

2.1   Metalinguistic comments in the dialectal literature

Dialect grammars are a useful tool to reconstruct the grammatical system of the respective variety (cf. Schmidt & Herrgen 2011: 112–115; Fleischer 2002: 36–39). This is why I examined all dialect grammars, dictionaries and grammatical or syntactic descriptions (in total 36) that could possibly comment on NC. They serve as a first overview on NC and as additional evidence with respect to my findings in 2.2. In 19 of them (see the appendix for the titles) NC is attested. They all include examples of N-spread; some of them contain a short comment on the frequency of usage of N-spread, too. As for Bernese German, Marti (1985: 248) mentions that N-spread is the norm in dialect; similar Weber (1923: 270) for Zürich and the *Schaffhauser Mundartwörterbuch* (Richli & Gallmann 2003: 264) discussing the pattern *nie nünt* 'never nothing'. The *Badisches Wörterbuch* (Ochs et al. 1925– vol. IV: 70) and, in a similar vein, Muster & Bürkli (2001: 206) note for the surroundings of Basel that *nie* 'never' is often found in an N-spread structure. With regard to the urban Basel dialect, Binz (1888: 27) even points out that NC is only possible without the sentential marker; he states that the NC structure without *nit* 'not' differs from more traditional language use and other modern dialects such as Swabian.

> Auch ist dem älteren Sprachgebrauch und anderen heutigen Dialekten, z.B. dem Schwäbischen gegenüber, die Einschränkung zu machen, dass eine derartige Häufung von negativen Begriffen nur dann stattfinden kann, wenn keiner davon die Partikel *nit* ist; also nicht *das han i jetz no nie nit ghert*; *das glaubt niemez nit*; *kai Geld isch nit do*; hier müsste baslerisch das *nit* wegbleiben.

> In contrast to older language use and to other modern dialects, e.g. Swabian, such an accumulation of negative markers is only possible if none of them is the particle *not*; hence, not *I have never not heard that yet*; *this believes nobody not*; *no money is not there*; in the variety of Bale *not* had to be dropped.

> (Binz 1888: 27–28; my translation, AM)

In contrast to N-spread, N-doubling is documented as a possible structure in only four of these sources. Noth (1993: 354) describes N-doubling as a rare phenomenon and the *Badisches Wörterbuch* explains that *nit* 'not' can occasionally be used in NC structures. Note that some of the N-doubling examples in the latter are from South Franconian, a transitional variety between Alemannic and West Central German. The third source is the *Schwäbisches Wörterbuch* (von Keller & Fischer 1914: 2020), the fourth Hodler (1969) with N-doubling for Bernese German. His examples of N-doubling, however, only include literary samples, and are – as he himself admits – taken from only one author (Jeremias Gotthelf), who lived from 1779 to 1854. As for the *Schweizerisches Idiotikon* (1881: 318) there is one N-doubling structure from Grisons, *[k]ein Bitzlei net* 'no whit not', which I did not subsume under the sources with N-doubling because it seems to be an idiomatic phrase. In the guise of fixed expressions, N-doubling pops up now and again, as the following example from the variety of Vorarlberg suggests: *ka Froog net* 'no question not' (p. c. from Oliver Schallert). I conclude that N-spread is well attested in Alemannic, whereas N-doubling is only rarely mentioned, namely in the southwest of Germany and in the Swabian variety.

2.2 Spontaneous speech data

The spontaneous speech data consists of informal interviews, conducted from the 1950s till the 1980s. All recordings are available in the form of transcriptions, either in Standard German in the case of the Zwirner Corpus ("Zwirner" in the following) and of ALCORP (but both with access to the original recordings), or in the dialectal variety in the case of the Ruoff Corpus ("Ruoff" in the following). The Ruoff Corpus which consists of interviews provided by Oliver Schallert and by Arno Ruoff (1984, 1985) comprises in total 374 speakers, the Zwirner Corpus 143 speakers. ALCORP involves a collection of interviews taken from the *Südwestdeutscher Sprachatlas* (SSA) (1974–1986), from the Zwirner Corpus (1950s and 1960s), and from the *Badisches Wörterbuch* (1894–1940, Ochs et al. 1925– vol. I: 3). I only considered the informants from the SSA (46 speakers in total, without those from the South Franconian part) in order to have a clearly defined time frame and to avoid overlapping data sets as regards the Zwirner Corpus. In total I analyzed 563 interviews with speakers of Alemannic and also listened to the recordings in those cases where the transcription was set in brackets to indicate the probable wording (because of the slurred speech of the informant), or where a DN reading was possible. A full-text search was not useful because of several reasons: Firstly, it was necessary to know the context of the structure in question to be sure that it featured NC and not a DN reading. Secondly, I also counted and examined possible, but not realized NC contexts such as example (3) in which a N-doubling construction *ka Hiat net* 'no hats not' could also have been possible:

(3) *Auf 'm Land*   *håt's*   *friher*   *ka' Hiat' geb'n*
  at-the countryside has-there in the past no hats given
  'At the countryside there were no hats in the past'.

<div align="right">(speaker from I/5457, Ruoff)</div>

Thirdly, almost 70% of the interviews were transcribed in the dialectal variety, so that a full-text search would have been very difficult because lexemes such as Standard German *kein* 'no/no one' or *nicht* 'not' were pronounced in very different ways, such as *kain, kan, koi, kai, koin, koa, koan, ka'* for *kein* 'no/no one' or *nid, net, 'it, 'et, et, it, eta* for *nicht* 'not'. Fourthly, I was interested in interspeaker and idiolectal variation and not in the mere amount of attested NC structures, that is, my underlying assumption is that each speaker represents one (partial) grammatical system. It is therefore possible to observe not only variation between grammars, but also within grammars, viz. interspeaker and idiolectal variation. The same idea has already been articulated as for variation in subject agreement and synthetic negation for the verb *be* in English varieties (cf. Bresnan, Deo & Sharma 2007). As the interviews of my corpus in large part consist of two persons (informant and interviewer) and are often rather in monologue than dialogue form (see (4) for an example), it seems justified to think of them as representing (partial) speaker grammars. The example (4) is an extract of an interview from Arno Ruoff with A = interviewer and S = informant; consider the N-spread structure, too.

(4) A: Ja ond wenn se 's Säckle wägbrenga, ohne daß m'r's märkt, nã?
  S: Jå jå nå, nã schpringa se ãi'm nimme nåch nadirlich [...], aber säll' isch' a Sälthait [Lachen]. Då baßt m'r äba so uff, wenn amål Säckli g'fillt isch', baßt m'r scho' uff. Då isch' **nirgends kaĩ'** Liacht un' nicks meh' [Lachen]. Jå, baßt m'r se halt ab, bis se komma, außer 's geht ja ou' d' Nåcht 'rom bis se wider d'rnåch gugga, dees gibt's ou', da' die iberhaupt lång nimme komma, lang nimme, daß d' Leit' in's Bett geh' [Lachen], nã hen se nadirlich besser hola [Lachen]. Ja-a, 's isch' ou' nit jedesmål on' net iberall, aber so hie en da wird's halt g'måcht. On' jetz' sonsch', was soll i'-ne sonsch' no' va'zehla?
  A: [...]
  (speaker from recording X/83, Ruoff)

  A: Well and what if they take away the bag so that one does not notice it?
  S: Well in this case, of course, they don't run after one any more ..., but this is quite rare [laughter]. But one is very very attentive if the bag is filled, one is really very attentive. There is **nowhere no** light and nothing any more [laughter]. Well, one just watches out for them until they come, but one can also wait until the end of the night and then watch after them again, this is also possible, that they do not come at all, that people go to bed [laughter],

> then of course it is much easier to look for them [laughter]. Well, this does
> not take place every time and everywhere, but at some places this is quite
> usual. And what else, what else do you want me to tell you?
>
> A: […]

As regards the selection of my data I only chose sentences that could definitely be
classified as NC-structures: I did not include sentences with a self-repair, postponed
particles like *nicht* 'not', *nicht wahr* 'not right' or *gar nicht* 'absolutely not' that
clearly functioned as discursive particles, expressions like *koa Nicks* 'no nothing',
and patterns including *nicks* 'nothing' (see example (5)) in which this lexeme does
not act as a n-indefinite but as a negative polarity item (NPI) because it appears in
a potential (structural) object position while being unlicensed as a thematic object
by argument structure (cf. Bayer 2009: 28). It thus shows an adverbial usage (with
the meaning 'not at all') and marks in this case both (the feature of) a sentential
negation and an NPI (cf. Bayer 2009: 9–10). Assuming that this analysis is correct,
one might subsume examples such as (5) under those of N-doubling. However, I
did not take them as evidence for N-doubling because *nicks* 'nothing/not at all'
and *net* 'not' differ in their number of features (two in the case of *nicks*, one in the
case of *not*) and in their structural position: *nicks* is always placed in front of the
n-indefinite (see (5)) and *not* afterwards (see (6) and (7)).

(5) *Und die zwei Groschen, die   bekamst du   extra, dann hattest du*
     and the two pennies   they got   you extra then had   you
     ***nichts   keine** Last   damit.*   (speaker 02991 from E_02849, Zwirner)
     nothing no   burden with-it
     'And you got the two pennies extra, so that you then had no burden (at all)
     with it.'

(6) *Des   brucht ab'r **ko'** Schpiel'r **net** wissa*   (speaker from XI-203, Ruoff)
     This needs but no player   not know
     'No player needs to know that.'

(7) *muaß jedes für sich   tua, daß **ken** Schwind'l **net** gåt*
     must each for him/herself do that no   cheating   not goes
     'Everyone has to do this on his own so that cheating isn't possible.'
     (speaker from XI-203, Ruoff)

As Table 2 shows, a narrow third of the total of dialect speakers make use of NC,
independently of the NC type (N-doubling and/or N-spread). The spoken varie-
ties from Zwirner, Ruoff 2 and ALCORP comprise Upper Rhine Alemannic, Lake
Constance Alemannic, Swabian, and High Alemannic; speakers from Ruoff 1 only
use a High Alemannic variety (Vorarlberg). The recordings from Ruoff show the
highest percentage, whereas Zwirner has the lowest percentage and ALCORP is
situated somewhere in between.

Table 2. Speakers with NC

Speakers	Zwirner	Ruoff 2	ALCORP	Ruoff 1
speakers with NC	15%	27%	26%	32%
total speakers	143	71	46	293

The different percentages cannot be explained by the different time stages, as Zwirner and Ruoff both conducted their interviews in the 1950s and 1960s (to be precise, the Alemannic interviews from Zwirner were conducted in the 1950s), and the percentage of ALCORP (1970s and 1980s) is quite close to the one from Ruoff. A more appropriate reason might be the interview itself, that is, the dialectal competence of the interviewer, as well as the scene setting. Seiler (2010: 516–517) points out that interviews should be conducted in a place the informant is very familiar with. He also mentions that the investigator's and the informant's variety should be as close as possible to one another. As a matter of fact, in more than one of the interviews of Ruoff's even the investigator himself uses an N-spread structure (see (8) with the investigator asking a question); that, of course, is a clear hint that this interviewer is fluent in dialect and not influenced by the standard variety. Therefore, I suggest that the lower percentage of Zwirner is very probably due to a greater influence of Standard German in the investigator's variety and/or a more formal scene setting during the interview (see Schmidt & Herrgen 2011: 120–121 for a detailed description of the setting and a similar conclusion regarding the general validity of Zwirner).

(8) *Händ Si **nian'r** **nüt** g'hört vom Flacks?*
Have you nowhere nothing heard from-the flax?
'Have you not heard anywhere anything of the flax?'

(speaker from XI-183, Ruoff)

The percentage of speakers that either use N-spread, N-doubling or both types (N-spread and N-doubling) is illustrated in Table 3. Sentences with two n-indefinites and a sentential negation were subsumed under the type N-doubling as the presence of the sentential negation constitutes the relevant difference between the two types. In three of the four corpora the majority of the speakers use N-spread. The highest percentage (81%) is attested in Ruoff 1.

Table 3. Distribution of NC types

	Zwirner	Ruoff 2	ALCORP	Ruoff 1
N-spread	55%	42%	67%	81%
N-doubling	23%	47%	17%	13%
both types	23%	11%	17%	6%
total speakers	22	19	12	94

In Ruoff 2 neither N-spread nor N-doubling represents the main type (no percentage value over 50%). Table 4 illustrates that this effect is due to one particular variety, i.e. Swabian. The higher percentage of N-doubling in Swabian is very likely caused by the influence of Bavarian, which makes predominant use of N-doubling, and not of N-spread (cf. Moser subm.).

Table 4. Distribution of NC types in Ruoff 2

	N-spread	N-doubling	both types
Upper Rhine Alemannic	16%	5%	–
Lake Constance Alemannic	5%	5%	–
High Alemannic	–	–	–
Swabian	21%	37%	11%

The examples (9)–(12) represent the two major tendencies as regards N-spread in Alemannic: Firstly, speakers often make use of *koa* 'no/no one' which is, by the way, also attested for speakers of Hessian (cf. Weiß 2017) or Bavarian (cf. Weiß 1998; Moser subm.). This observation is not very surprising and can easily be explained by the fact that *koa* 'no/no one' is the only n-indefinite that does not morphologically resemble the other negation markers. Diachronically, this item originated from the former negative polarity item *dehein* 'any' (cf. Jäger 2008: 260–266). Secondly, the N-spread pattern used by the majority of speakers consists of a combination of adverb plus argument, that is, *nia/nirgeds* 'never/nowhere' plus *niamed/nicks/ koa* 'nobody/nothing/no'; the pattern without adverb (e.g. *niamed nicks* 'nobody nothing') is less frequently attested. The most frequently used adverb in combination with an argument is *nia* 'never' (cf. the appendix for details) which by the way confirms the observation made in Section 2.1. The second tendency corresponds to the one attested in Hessian varieties and confirms Weiß' findings. This observation can very probably be explained by the fact that *nie* 'never' is the most robust n-indefinite as regards N-spread, and that N-spread with an adverb (*nia* 'never', *nirgeds* 'nowhere') is more stable than N-spread with the pronouns *nicks* 'nothing' and *niamed* 'nobody' (cf. Weiß 2017).[3]

(9) *ab'r im   Summ'r då   hem-m'r eigentli* **nia   nicks**
     but in-the summer there have-we actually never nothing
     tiaf'kühlt's, nia,   au, auß'r am   Fleisch halt.
     frozen   never ex except the.DAT meat   just
     'But in summer we actually never freeze anything, never, except for meat'.
                                                   (speaker from XI-316, Ruoff)

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3.   The different behavior of n-indefinites as regards N-doubling is examined in Moser (subm.).

(10) alles   *vo   Hand då   håt's* **nirgeds koi** *Maschina gäba.*
      everything from hand   there has-it nowhere no machine   existed
      'Everything made by hand, there were no machines around.'

<div align="right">(speaker from I/4982, Ruoff)</div>

(11) *Aber a Liadle g'songa, so   han e no* **nia**   **koa's**   *g'heert.*
      but   a song   sung   such   have I yet never no one   heard
      'But had sung a song, such a one I have never heard before.'

<div align="right">(speaker from I/188, Ruoff)</div>

(12) *Naĩĩ, naĩ, s' het   sogar* **kaĩ's**   **kaĩ** *Wiĩbou   g'ha!*
      No   no   it = has even no one no   viniculture had
      'No, no, no one of them even had a viniculture!' (speaker from XI/234, Ruoff)

Furthermore, the N-spread pattern is obligatorily used by its speakers given that contexts in which N-spread would be possible but is not used are attested for only 1% of the speakers (speaker XI: 316 from Ruoff; speaker *Langnau* from ALCORP). N-doubling, on the other hand, is never obligatory and thus an option used by all of the speakers. Finally note that the speakers with N-spread use this pattern only in adjacency, i.e. there is no example of N-spread in which the two n-indefinites are not adjacent to each other. This observation contrasts with NC in Romance languages such as Italian in which two n-indefinites do not have to be adjacent. But remember that speakers of Italian use both types of NC (N-spread and N-doubling) whereas the majority of Alemannic speakers use N-spread only.

2.3   Questionnaire

This part comprises a selection of questions from two questionnaire-based projects: *Syntaktischer Atlas der Deutschen Schweiz* (SADS), project duration from 2000 until 2018, and *Syntax des Alemannischen* (SynAlm), project duration from 2011 till 2016. The results of this part primarily concern Alemannic speakers in German-speaking Switzerland but see for a full account of the results of SynAlm the appendix (Alemannic in Baden-Württemberg, Alsace, Vorarlberg, Switzerland). As regards the SADS, the stimuli could be rated by ticking 'yes' (possible in my variety) or 'no' (impossible in my variety). Furthermore, the informants could indicate which variant was most natural for them as well as write down a variant of their own. The examples (see (13) and (14) from the SADS) were embedded in the context of a mother bristling at her son because he only plays video games in his free time (bold type in the original):

(13) *Er list   käs Buech* **nid!**
      He reads   no   book   not
      'He does not read a book!'

(14) *Er list   käs Buech!*
      He   reads no   book
      'He does not read a book!'

The informants had to judge the sentences (13) and (14). The search string fIII18_1` = '1'[4] showed all those informants who accepted the N-doubling structure. This search string also included informants who had ticked both options (the one without NC and the N-doubling one), who had chosen another form (a non N-doubling one) to be more natural and/or had proposed a variant of their own. Some informants showed different degrees of acceptability: They had judged the N-doubling as acceptable but had simultaneously chosen the non N-doubling variant as most natural one or had written down a non N-doubling one as their own variant. I did not count those informants because I was only interested in those speakers who (very probably) actively use NC. The context of the examples (see (15) and (16)) is the following: a grandmother explains to her grandchild why she did not go on holiday by plane until she was 50. The search string fIII21_1` = '1'[5] includes the informants who had ticked 'yes' as regards the N-spread structure (bold type in the original):

(15) *Weisch,   früener   hät niemer **kä** Gält   ghaa für daas!*
      Know-you in the past   has nobody no money had   for that
      'You know nobody had money for this in the past!'

(16) *Weisch,   früener   hät niemer Gält   ghaa für daas!*
      Know-you in the past   has nobody money had   for *this*
      'You know, nobody had money for this in the past!'

As regards SynAlm the two relevant questions were placed in different surveys so that I first had to check whether every informant had participated in both inquiries or not. The sentences could be either rated on a scale from 1 (natural) to 5 (impossible) or from 1 (natural) to 3 (impossible), and I only took those informants who had judged the sentences as natural. The question for N-doubling was taken from questionnaire 7, question 10a/3 (see (17)), and used the same combination of n-indefinites as the SADS did. In terms of N-spread there was no question with the same pattern of n-indefinites as the SADS had used and I therefore had to stick with a combination that was very similar to the one from the SADS, namely question 3.1 from questionnaire 4 (see (18)) (bold type in the original):

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4.   Details concerning the search string: fIII = questionnaire 3; 18_1 = question 18, with the first sentence to tick; = '1' = the informants that answered with 'yes', that is, N-doubling is possible.

5.   Details concerning the search string: fIII = questionnaire 3; 21_1 = question 21, with the first sentence to tick; = '1' = the informants that answered with 'yes', that is, N-spread is possible.

(17) *Ich ha*   **kein Mensch**   **nit** *gseh.*
       I   have no   human being not seen
       'I have not seen any human being.'

(18) *Ich ha*   **neane**   **koan** *Bleischtift gefunde!*
       I   have nowhere no   pencil   found
       'I did not find a pencil anywhere!'

The preferred NC type for speakers in German-speaking Switzerland is, hardly surprising, again, N-spread; the percentages for N-doubling as well as for both types are very low. A possible explanation for the different percentages for N-spread between the SADS and SynAlm can possibly be the fact that the pattern *niemer kä* 'nobody no/no one' (SADS) is not at all attested in the dialect grammars/dictionaries for Switzerland I consulted (see 2.1). This pattern is therefore probably not often used or even impossible (for speakers from German-speaking Switzerland). If this assumption is right we can also conclude that speakers do not only differ in the choice of the NC type, but also in the choice of (im)possible combinations of n-indefinites, as is the case for speakers of West Flemish (see Haegeman & Lohndal 2010 and 2.2).

Table 5. Distribution of NC types (questionnaire)

	SADS	SynAlm
N-spread	21%	32%
N-doubling	1%	2%
both types	1%	–
total speakers	1,987	96

2.4   Summary

The different data sources we analyzed point to the following conclusions: Firstly, N-spread is the NC strategy that most speakers of an Alemannic variety use exclusively. Secondly, there are differences among the Alemannic varieties about the percentages (and the optionality/obligatory) of N-spread and N-doubling, considering that nearly all of the speakers with N-doubling use the Swabian variety rather than High or Upper Rhine Alemannic. We can therefore conclude that there is not one grammar that represents the speaker behavior of all speakers of Alemannic, but four grammars that differ from each other with respect to the NC type and the idiolectal variation, see (19):

(19) Grammar 1: obligatory N-spread, no N-doubling
      Grammar 2: optional N-doubling, no N-spread
      Grammar 3: obligatory N-spread, optional N-doubling
      Grammar 4: no N-spread, no N-doubling

In the following part I propose an explanation for the four different speaker grammars. I start with two major issues concerning NC, namely the semantic and syntactic behavior of n-indefinites in Section 3.1 and the syntax of NC in 3.2 before I then move on to my proposal in the framework of Optimality Theory (Section 3.3).

3. Towards an explanation of NC

There is a huge amount of scholarly literature on NC, and this article does not aim at giving a full account of the different approaches and explanations; but see e.g. Zeijlstra (2015) and Penka (2011: 14–89) for a detailed overview on NC. Nevertheless, I would like to introduce the reader to two aspects of NC that are important and (still) in the focus of interest: the semantic and syntactic behavior of n-indefinites and the syntax of NC.

3.1 The semantic and syntactic behavior of n-indefinites

As regards the ability of n-indefinites to participate in negation in NC languages Laka (1990: 107–109) coined the term "n-word" to describe those n-indefinites which participate in NC languages. Giannakidou (2006) then proposed a definition of n-words (see (20)) which takes two central, but contradictory properties of them as the defining characteristic, namely the property of participating in NC and the property to be used in fragment answers with a negative interpretation.

(20) n-word
      An expression *a* is an n-word iff:
      a. *a* can be used in structures containing sentential negation or another *a*-expression yielding a reading equivalent to one logical negation; and
      b. *a* can provide a negative fragment answer. (Giannakidou 2006: 328)

The latter is necessary to distinguish n-indefinites from negative polarity items (NPI) because NPI such as *anybody* in (21b) do not have negative force.

(21) a. A: *Who did you see?*
          B: *Nobody.*
      b. A: *Who did you see?*
          B: **Anybody.*

However, I will not adopt the term "n-word" to describe n-indefinites in NC languages but stick to the term "n-indefinite" to define "nominal or adverbial expressions that directly translate 'nobody', 'nothing', 'nowhere', 'never' (etc.) […], independently of whether they co-occur with predicate negation" (Haspelmath 2005; also used by Penka 2011). The definition of n-word in (20), though, has already shown that n-indefinites include two properties that seem incompatible with each other: the definition assumes them to be semantically non-negative (20a), whereas the n-indefinite apparently has negative force in (20b). There are basically three different approaches to deal with the semantics and the (non-)quantificational force of n-indefinites, and I will briefly illustrate them using the example of the Spanish n-indefinites series: Espinal (2001) takes them to be negative quantifiers (i.e., with negative force); Laka (1990), on the other hand, assumes them to be NPIs, that is, semantically non-negative polarity items, and Herburger (2001) suggests that they are either negative quantifiers or NPIs, which means that they are lexically ambiguous. A common analysis in the syntax of NC is one that treats n-indefinites neither as quantifiers nor as NPIs nor as "ambiguous" between the two but similar to weak indefinites introducing a variable which is existentially closed. The licensing relation between the n-indefinite and negation is spelled out in syntactic terms: weak indefinite pronouns (cf. Diesing 1992) correspond to German *jemand* 'someone', *etwas* 'something' and (the indefinite article) *ein* 'a'. N-indefinites have an additional (formal) feature [Neg] in the sense of the Minimalist Program (MP) (cf. Chomsky 1995) and are subject to feature checking as conceived in the MP. Indefinites are semantically decomposable, in the case of *niemand* 'nobody' into the feature [Neg], the quantifier ∃ and the restriction "person". Note that the existential quantifier is no proper part of the indefinite itself, but delivered by the context, e.g. via existential closure (cf. Weiß 2002a: 85). The underlying assumption is that weak indefinites, despite being morphologically distinct in some languages, are not different lexemes but only allomorphs, cf. Musolino, Crain & Thornton (2000) who have proposed this for *some* and *any*, and Weiß (2002a) extending this to n-indefinites (cf. this paragraph Weiß 2002a, 2002b; Zeijlstra 2015).

3.2 The syntax of NC: General issues and two applications

In general, it is assumed that the semantic negation is syntactically a NegP (cf. Pollock 1989). A first, influential approach has been the one by Zanuttini (1991), Haegeman (1995) and Haegeman & Zanuttini (1996), where n-indefinites are in a Spec-Head-configuration with Neg° because they are either overtly or covertly (at LF) raised to the Head. In this constellation the superfluous negation markers are absorbed by a process called "Neg-factorization". This proposal assumes n-indefinites to be negative quantifiers, and therefore it needs additional assumptions to explain

how it comes that two (or more) negative markers are analyzed as contributing only one negation to the interpretation of the sentence. This approach has been replaced by one that treats NC as syntactic agreement where n-indefinites and/or the sentential negation carry uninterpretable formal negative features that have to be checked against a single interpretable negative feature. First elaborated approaches have been those by Brown (1999) for Russian, Ladusaw (1992) for non-standard English, Weiß (2002b) for Bavarian and Zeijlstra (2004) for (among other languages) Dutch. Today's approaches to NC differ from each other w.r.t. the (un)interpretable negative features [uNeg] and [iNeg] and their distribution across n-indefinite and/ or sentential negation (see e.g. Penka 2011 and Haegeman & Lohndal 2010).

If NC can be explained by syntactic agreement or is treated on a par with other agreement phenomena there should be other cases where we find an element carrying the interpretable feature and being phonetically empty. Zeijlstra (2015) mentions the parallel of null-subjects: In some languages finite verbs do not agree with their subjects and every subject must be pronounced. Other languages such as Italian are pro-drop languages: The finite verb agrees with its subject and allows the actual subject to be a phonological null-element, see example (22), taken from Zeijlstra (2015: 291):

(22) a. OP_{NEG} [iNeg] *nessuno* [uNeg] *telefona*
          nobody   phones
          'Nobody phones'.
     b. pro [i3SG] *telefona* [u3SG]
                   phones
          'S/he phones'.

Zeijlstra (2004) reduces the difference between NC and DN languages to whether n-indefinites are semantically marked for negation or only syntactically. In NC languages the n-indefinite always carries [uNeg] and the semantic negation [iNeg] is either realized overtly or covertly in the form of an operator; in DN languages the n-indefinite carries [iNeg]. The relevant mechanism in the Minimalist Program is Agree: two expressions with the same feature, whereby one feature is semantically interpretable and the other is not, check their features. The uninterpretable feature is then deleted and cannot participate in the meaning.[6] Zeijlstra (and along with him Penka 2011) furthermore adopts an Agree system that allows Multiple Agree (cf. Ura 1996; Hiraiwa 2001), so that multiple n-indefinites can be checked

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6.   The Agree mechanism that Zeijlstra adopts is one where [iNeg] features must c-command [uNeg] features. This is the opposite of standard Chomskyan Agree, although this system allows instances of reverse Agree, too. In recent works he claims that all instances of Agree should actually apply in this reversed fashion (cf. Zeijlstra 2012).

against a single negative operator and N-spread is possible.[7] The main problem with Zeijlstra's approach is that he assumes n-indefinites to be semantically non-negative only in NC languages. However, in languages such as (Standard) German or (Standard) Dutch (i.e. DN languages) split-scope reading is attested and the negation is interpreted in a different position than the indefinite part is, see example (23), taken from Penka (2011: 89; bold type in the original):

(23) *Bei der Prüfung muss **kein Professor** anwesend sein.*
    at the exam   must no   professor present   be
    a. 'It is not required that there be a professor present.' ¬ > must > ∃
    b. 'There is no professor who is required to be present.' ¬∃ > must
    c. ??'It is required that there be no professor present.' ??must > ¬∃

It is obvious that n-indefinites that occur embedded under a modal verb give rise to an interpretation that cannot be derived under the assumption that n-indefinites are negative quantifiers (i.e. semantically negative) because in the salient reading (23a), the modal takes scope in between the negative and the indefinite meaning component of the n-indefinite. The negation outscopes the modal, while at the same time the n-indefinite is interpreted in the scope of the modal. It looks as if the n-indefinite has to be split up into two parts, a negation and an indefinite. This is why reading (23a) is called a split-scope reading. Further arguments in favor of a split-scope reading (using the example of VP ellipsis) can be found in Weiß (2002b: 137–138 for English *no one*, Weiß 2004: 190–193 for German *kein* 'no/no one' and *niemand* 'nobody'). In order to account for split-scope readings, Penka (2011) assumes n-indefinites to be semantically non-negative in DN as well as in NC languages and she proposes a feature set that extends the one from Zeijlstra and Weiß (2002a). Penka (2011) proposes a system in which the features [iNeg] and [uNeg] can also have the property [iNegØ] and [uNegØ] and in which [uNeg] can be checked by [iNeg] or [iNegØ]. Note that only Op¬ bears the feature [iNegØ]. The abstract negation operator is always necessary in case there is no overt sentential negation.[8] Jäger & Penka (2012) apply this system to negation in the history of

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7.   Haegeman and Lohndal (2010) show that the application of Multiple Agree to derive NC in West Flemish gives rise to the wrong predictions. They propose an implementation of an Agree mechanism which is binary and strictly local instead.

8.   Weiß (2002b) proposes another analysis in which the negation particle is deleted at PF. This has the advantage that the sentences (i) and (ii) are synonymic and do not have to be analyzed differently (with the exception of the deletion in (ii) at PF).

(i)   *des hod **koana**   **ned** gseng.*
    this has no one   not seen
    'No one has seen this'

German as well as to modern non-standard varieties. Table 6 shows their approach, now applied to the four speaker grammars of Alemannic.

Table 6. Four grammars of Alemannic, after Jäger & Penka (2012)

	Grammar 1	**Grammar 2**	**Grammar 3**	**Grammar 4**
	N-spread	N-doubling	both types	no NC
Feature on …				
negator*	[iNeg(Ø)]	[iNeg(Ø)]	[iNeg(Ø)]	[iNeg(Ø)]
n-indefinite	[uNegØ]	[uNeg]	[uNeg]	[uNegØ]
Multiple Agree	obligatory	available	available	not available

* Realized as sentential negation [iNeg] or operator [iNegØ].

Grammars 1 and 4 are characterized by the same distribution of features: n-indefinites with [uNegØ] can only be checked by the feature [iNegØ] on the abstract operator, that is, N-doubling is not possible. Grammars 1 and 4 are only different from each other in terms of the operation Multiple Agree which is obligatory for speakers of Grammar 1 but not available for those of Grammar 4. Grammars 2 and 3 both allow N-doubling because the feature on the n-indefinite is [uNeg] and this feature can be checked both by [iNeg] or [iNegØ], thus either with an overt or a covert negation marker. However, the proposal by Penka (2011) as well as Jäger and Penka (2012) cannot fully explain the four speaker grammars attested for the Alemannic varieties: There is no difference between Grammars 2 and 3, and Grammar 3 cannot account for N-spread – or rather only if one assumes that the n-indefinite sometimes bears [uNeg] and sometimes [uNegØ]; and that Multiple Agree is sometimes obligatory and sometimes only optional. This is though incompatible with the general approach of Penka (2011), Jäger & Penka (2012).[9]

An alternative approach to NC is outlined in Haegeman & Lohndal (2010), where possible and impossible patterns of NC in West Flemish are explained by

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(ii) *des hod* **koana** *gseng*
this has no one seen
'No one has seen this'.

9. More generally speaking, there are two main problems with Penka's approach: (1) the assumption of a parameterization of (Multiple) Agree which can be optional in some NC languages (e.g. Romanian and French) or entirely unavailable in languages such as Standard German without NC. But, given that Agree is an operation of narrow syntax, it should be universal (cf. Breitbarth 2014: 140). (2) [uNeg] indefinites can be checked by either a bearer of an [iNeg] feature or by a covert Op¬ bearing the special [iNegØ] feature. However, as an anonymous reviewer points out, standard Minimalism does not allow agreement between unlike features. If a [iNegØ] feature is indeed different from a [iNeg] one, it should only be able to licence [uNegØ] indefinites while [uNeg] indefinites could only be licenced by [iNeg] elements.

feature decomposition of n-indefinites and sentential negation as well as by binary Agree (instead of Multiple Agree). According to Haegeman & Lohndal (2010: 199), feature decomposition plays a decisive role in determining how negative markers enter into NC relations: n-indefinites have two features, namely [i/uNeg] and [i/uQ] that govern the (un)interpretability of quantification. Bearing [uNeg, uQ], sentential negation bears two uninterpretable features to be checked by a negative operator with the interpretable features [iNeg, iQ]. (24) shows some combinations of negative markers in West Flemish that can or cannot enter into the NC relation (cf. Haegeman & Lohndal 2010: 199):

(24) a. *niemand* 'no one'   + *niet* 'not'
          [uNeg, iQ]   + [uNeg, uQ]
      b. **geen-NP* 'no NP'   + *niet* 'not'
          [uNeg]   + [uNeg, uQ]
      c. **niet meer* 'no more' + *niet* 'not'
          [uNeg]   + [uNeg, uQ]
      d. *niemand* 'no one'   + *geen-NP* 'no NP'
          [uNeg, iQ]   + [uNeg]
      e. *niemand* 'no one'   + *niet meer* 'no more'
          [uNeg, iQ]   [uNeg]

Having two uninterpretable features, *niet* can match and undergo Agree only with an item that carries both of them. A match between *niet* and the simple n-indefinite *niemand* is possible because the latter combines an [uNeg] feature with an [iQ] feature; a match between *niet* and a complex constituent such as *niet meer* is not possible because the latter lacks the quantificational feature. In other words: NC is not available in (24b) and (24c) because [uQ] of *niet* remains unchecked (the feature sets are not identical). The same problem does not arise for NC between *niemand* with two features [uNeg, iQ] and with *geen-NP* and *niet meer* with one feature [uNeg] because the additional feature on *niemand* is interpretable and need not be checked by Agree (see (24d–e)). Note that Haegeman & Lohndal's (2010: 196–198) definition of Agree allows both uninterpretable features on *niet* to be checked by the feature on *niemand*. The example (25), with the feature sets of *niemand* and *niet* being partially identical, illustrates how the negative constituents enter into NC: after Agree, [uNeg] survives only on *niemand*. In turn, the surviving [uNeg] will Agree with the [iNeg] of the negative operator.

(25) α   γ   β   (Haegeman & Lohndal 2010: 204)
      OP   *niemand* 'no one'   *niet* 'not'
      [iNeg, iQ] [uNeg, iQ]   [uNeg, uQ]
      [iNeg, iQ] [uNeg, iQ]   [~~uNeg, uQ~~]
      [iNeg, iQ] [~~uNeg~~, iQ]   [~~uNeg, uQ~~]

In the following I will apply Haegeman & Lohndal's approach to the four grammars attested for Alemannic. Compared to West Flemish N-doubling in the form of *koa* 'no/no one' and *net* 'not' is possible in Alemannic (in Grammar 2 and 3; for examples see (6) and (7) above). I therefore assume that *koa* carries the same feature set as the other n-indefinites, that is, [uNeg, iQ]. The following example (26) shows Grammar 2: NC is possible as the same mechanism as in (25) applies, with *koa* and *net* having identical feature sets.

(26) α   γ   β
      OP   *koa* 'no/no one' *net* 'not'
      [iNeg, iQ] [uNeg, iQ]   [uNeg, uQ]
      [iNeg, iQ] [uNeg, iQ]   [~~uNeg, uQ~~]
      [iNeg, iQ] [~~uNeg~~, iQ]

In the case of Grammar 1, however, one receives two [iQ], see (27), and for an example for this pattern see (11):

(27) α   γ   β
      OP   *nia* 'never' *koa* 'no/no one'
      [iNeg, iQ] [uNeg, iQ]   [uNeg, iQ]
      [iNeg, iQ] [uNeg, iQ]   [~~uNeg~~, iQ]
      [iNeg, iQ] [~~uNeg~~, iQ]   [~~uNeg~~, iQ]

Agree between two interpretable features is not possible because information that has to be retained would be deleted (cf. Haegeman & Lohndal 2010: 197 and Chomsky's notion of Full Interpretation).[10] In other words, N-spread, the major pattern of speakers with NC in Alemannic, would be not possible. Furthermore, I do not see how the optional use of N-doubling could be predicted by their proposal. In the following I will propose an approach that can account for both variation between and within grammars.

3.3 Explaining NC in optimality theory (OT)

An OT grammar can be viewed as a function from inputs to outputs, and the relation between input and output is determined by the ordinal ranking of violable constraints: every grammar is a system of conflicting forces. These "forces" are embodied by constraints, each of which makes a requirement about some aspect

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10. Grammar 1 would be possible if we assume that [iQ] from *nichts* 'nothing' is too deeply embedded to take part in further Agree operations so that, at the next derivational step, only the feature [iQ] from *koa* 'no/no one' is visible. But in this case one would have to adopt two different algorithms for the two Agree relations (cf. Haegeman & Lohndal 2010: 202 and Fn. 30).

of grammatical output forms. Constraints are typically opposed, that is, satisfying one constraint implies violating another one. Given the fact that no form can satisfy all constraints simultaneously, there must be some mechanism selecting forms that incur "lesser" constraint violations over others that include "more serious" ones. This selection mechanism involves hierarchical ranking of (universal) constraints, so that higher-ranked constraints have priority over lower-ranked ones. The input-to-output-mapping in an OT grammar is shown in Table 7: For a given input, the grammar generates (GEN) and then evaluates (EVAL) a set of output candidates, from which the optimal candidate is selected and thus constitutes the actual output. Evaluation takes place through a set of hierarchically ranked constraints ($C_1 >> C_2 >> ... C_n$), each of which may eliminate some candidate outputs until a point is reached at which only one output candidate survives (cf. this paragraph Kager 1999: 4–9; Müller 2000: 5–18).

Table 7. Structure of an OT grammar (after Kager 1999: 8)
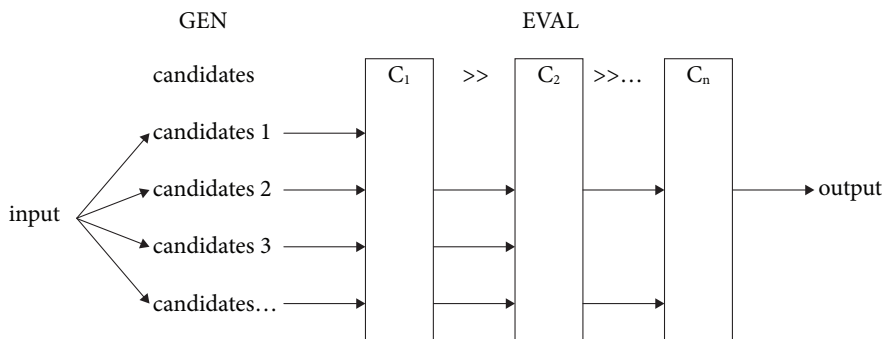
Negation and NC in OT was first established in the sense of an OT typology by de Swart (2006, 2010), and I will illustrate the mechanisms of OT with the aid of the following simple example from negation (adapted from de Swart 2010: 76–78 and Kager 1999: 1–13). She starts with the observation that negation is formally and interpretationally marked vis à vis affirmation. In an OT model a faithfulness constraint governing affirmation and negation requires the syntax to reflect the fact that negative sentences are distinct from affirmatives. The constraint that relates to this connection is called FNEG ("faith to negation") and requires the negation to be faithful to the input, that is, to reflect the nonaffirmative nature of the input in the output. FNEG requires negation in the meaning (input) to be reflected in the output (form). In OT, faithfulness constraints (such as FNEG) are counteracted by markedness constraints. Markedness constraints are output oriented and typically aim at the reduction of structure in the output. The markedness constraint that plays a role in negative statements is *NEG, that is, avoid negation in the output. Both FNEG and *NEG are violable constraints, and the conflict between them is resolved

by the ranking of constraints in terms of strength. The ranking of constraints can be demonstrated by Table 8).

Table 8. Generation of negative sentences

input: ¬ p	FNEG	*NEG
output: S ☞ not S	*!	*

A tableau lists two (or any number of) output candidates vertically in random order, and constraints horizontally in a descending ranking from left to right. The cells contain violation marks "*" that are incurred by each candidate for the constraint that heads the column. If the constraint is violated twice (which is worse than being violated once) the cell contains two "*". The optimal candidate is marked by the index "☞". A fatal violation for a candidate is indicated by the exclamation mark "!" and the shading of cells whose violation content is no longer relevant. The input shown in Table 1 represents a particular meaning, and the output candidates for evaluation by the grammar are the candidate forms. The ranking FNEG > > *NEG reflects the general view that negative statements are crosslinguistically more marked in form than their affirmative counterparts.

So far, we have seen the generation of negative sentences with the ranking of two constraints. For successfully analyzing NC, however, a further constraint is necessary: the constraint MAXNEG favors the multiplication of n-indefinites within the scope of sentential negation or another n-indefinite. The functional motivation for this constraint is the desire to mark the scope of negation, that is, the participants that are affected by negation. MAXNEG is in conflict with the markedness constraint *NEG because MAXNEG aims at reflecting an input feature concerning negation in the output form, whereas *NEG aims at avoiding negation in the output. The difference between languages with and without NC can be accounted for in terms of the position of MAXNEG relative to *NEG. If MAXNEG is ranked higher than *NEG, only n-indefinites are used to express indefinites under negation (28a). If *NEG is ranked above MAXNEG in the syntax, the optimal way to express the meaning $\neg\exists x_1 \exists x_2$ is by means of only one n-indefinite (28b). FNEG is always ranked at the top. The high ranking of FNEG makes it impossible to express indefinites under negation by means of non-negative indefinites exclusively (in the absence of a marker of sentential negation) (cf. this paragraph de Swart 2010: 135–137).

(28) a. NC languages: FNEG > > MAXNEG > > *NEG
      b. DN languages: FNEG > > *NEG > > MAXNEG

I now apply de Swart's ranking (28) to the four speaker grammars of Alemannic: Table 9 shows Speaker grammar 1 (N-spread), illustrated by the examples in (29) and (30). In Table 10, speaker grammar 4 with no NC is shown, see example (31) for illustration.

Table 9. Grammar 1 with N-spread

input: $\neg\exists x_1 \exists x_2$	FNeg	MaxNeg	*Neg
output: indefinite + indefinite	*!	**	
n-indefinite + indefinite		*!	*
☞ n-indefinite + n-indefinite			**

Table 10. Grammar 4 without N-spread

input: $\neg\exists x_1 \exists x_2$	FNeg	*Neg	MaxNeg
output: indefinite + indefinite	*!		**
☞ n-indefinite + indefinite		*	*
n-indefinite + n-indefinite		*!*	

(29) ab'r *im   Summ'r då   hem-m'r eigentli **nia   nicks   tiaf'kühlt's,***
      but in-the summer there have-we actually never nothing frozen
      nia,   au, auß'r am Fleisch halt.
      never ex except at meat   just
      'But in summer we actually never froze anything, never, except meat.'
                                                    (speaker 1 from XI-316, Ruoff)

(30) *Und gesagt hat aber **keins   nichts,**   bis   wir mal zu den Häusern*
      and said   has but no one nothing until we PAR to the houses
      gekommen sind
      come   are
      'And no one said anything until we arrived at the houses'.
                                          (speaker 00585 from E_00514, Zwirner)

(31) *Die Grenzen haben nie   klar   stattgefunden,   es   hat   **nie***
      the borders have never clearly taken place   there has never a
      eine klare   Trennung gegeben, man hat also nie   können
      clear separation   given   one has so never could
      sagen, da   ist der Lake   evangelisch
      say   there is the Lake [name of district] protestant
      'There never were real borders, there has never been a clear division, one could never say this is the protestant part of the town'
                                          (speaker 00083 from E_0069, Zwirner)

So far, Tables 9 and 10 predict the correct output in the case of two indefinites as the input ($\neg\exists x_1 \exists x_2$). Now it is necessary to test the output in the case of one indefinite as the input ($\neg\exists x_1$). A correct output should predict a structure without N-doubling. As regards Grammar 1, the ranking (Table 11) is identical to the one in Table 10, with the exception of the constraint NegAttract which favors the realization of clausal negation on an indefinite (cf. de Swart 2010: 119). NegAttract is not necessary where the input contains two indefinites because it does not drive the use of multiple n-indefinites (cf. de Swart 2010: 135). Table 11 (after de Swart 2010: 159) shows that Grammar 1 can correctly be generated.

Table 11. Grammar 1 without N-doubling*

$\neg\exists x_1 V(x)$	FNeg	NegAttract	MaxNeg	*Neg
indefinite V	*!	*	*	
indefinite SN V		*!	*	*
☞ n-indefinite V				*
n-indefinite SN V				*!*

* As regards the abbreviations in Table 11 and 12: V = verb; SN = sentential negation.

As regards Grammar 4, however, the same ranking does not yield the correct output, namely one non-NC candidate. The ranking in Table 12 predicts that a speaker of Grammar 4 can either produce a sentence without N-doubling or a sentence with an indefinite and a sentential negation such as *nicht ein Haus* 'not a house' instead of *kein Haus* 'no house'. For this case, de Swart (2010: 159) assumes that economy favors the n-indefinite instead of the indefinite plus sentential negation candidate and her proposal therefore predicts that the output only consists of the form "n-indefinite V". However, I do not follow her in terms of this assumption because the output of an OT grammar should be the optimal candidate(s), that is, if economy is relevant, it cannot be taken to apply after candidate evalutation.

Table 12. Grammar 4 with two optimal candidates

$\neg\exists x_1 V(x)$	FNeg	*Neg	NegAttract	MaxNeg
indefinite V	*!		*	*
☞ indefinite SN V		*	*	*
☞ n-indefinite V		*		
n-indefinite SN V		*!*		

Looking at Grammar 2, it is difficult to accomodate our data with de Swart's (2010) typology. De Swart's typology is based on Haspelmath (1997: 201) and comprises the following types: (1) obligatory N-doubling, (2) no NC, (3) optional N-doubling

depending on the pre- or postverbal realization of the n-indefinites (the so-called non-strict NC languages, see 3.5). In our case, however, neither (1) nor (3) of the typology of Haspelmath can be used as N-doubling is optional and not obligatory in Alemannic, as well as the n-indefinite is always placed in front of the sentential negation (with a NC reading), see examples (6) and (7) above. The same, by the way, holds for N-doubling in Bavarian: As Weiß (2002b: 147) points out, example (32) induces a DN reading, with the n-indefinite placed after the sentential negation:[11]

(32) da *Sepp war ned mid nix zfriem*
      the Joe   was not with nothing content
      'Joe was content with everything'.

I conclude that de Swart's typology cannot simply be adopted for the four speaker grammars, and it is for this reason that I would like to propose a new approach to negation and NC which is for now limited to Alemannic, but which I hope to extend for other varieties as well.

My proposal is based on two observations: Languages differ in their repertoires of negative expressions and many lack negative quantifiers (=n-indefinites) (cf. Bresnan 2001: 27), but all varieties possess the standard negation, and typologically standard negation is overwhelmingly a verbal category and rarely appears as a nominal category (cf. Payne 1985: 223, after: Bresnan 2001: 27). Similar observations are made by Bernini & Ramat (1996: 117) who note that negative quantifiers are not universally lexicalised in the languages of the world even if this is the case for the majority of the languages of Europe. This approach contrasts with the one by de Swart in noting that natural languages frequently have linguistic means to indicate that an argument must be interpreted within the scope of negation, that is, they often have n-indefinites (cf. de Swart 2010: 136, referring to Corblin & Tovena 2003: 326). The second observation automatically follows from the first one: the sentential negation represents the unmarked and the n-indefinite the marked form. This means that syntactic structure generation is unmarked while morphological generation is marked. As regards the second observation I follow Ackema & Neeleman (2001) who ask: "Does a syntactic realization of some input compete with a morphological realization if both are in principle possible?" (2001: 29), and I agree with them that syntax and morphology are systems that generate structure independently from each other, and that both differ in terms of markedness (cf.

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11. Weiß (2002b: 146–147) explains the DN reading by the fact that both Neg features are still present at LF (no checking or movement: the n-indefinite is in its VP-internal base position), thus cancelling each other.

Ackema & Neeleman 2001: 30–31). Vogel (2006), by the ways, argues in the same vein.[12] These assumptions suggest the following constraints:

$FNeg_0$ is a faithfulness constraint and aims at preserving the sentential scope of the negation in the output. The input should be realized as an overt sentential negation marker. This constraint is consistent with the constraints from Bresnan (2002: 48; called Faith^Neg) and de Swart (2010: 120, called FNeg). Furthermore, I assume that the realization of the input in the form of the sentential negation is the unmarked form, which implies that there must be a marked one, too. In this case the input is realized as a covert operator. This constraint is called $FNeg_1$ and favours the N-spread structure but penalizes N-doubling. The third constraint is called Scope and is necessary for the scope of negation, to be precise the indefinites in the scope of negation. This constraint is sensitive to its morpho-syntactic context and comes in two different shapes, i.e. $Scope_1$ and $Scope_2$: $Scope_1$ demands that the specified form should be taken as rarely as possible. This means that this constraint penalizes those grammars where more than the first indefinite in the scope of negation is specified. $Scope_2$ demands that at least one indefinite be specified in the scope of negation, namely the first. This constraint penalizes only those grammars where the first indefinite is underspecified. Furthermore, I base this constraint upon the underlying assumption that there is a natural tendency "to put the negative word or element as early as possible, so as to leave no doubt in the mind of the hearer as to the purport of what is said" (Jespersen 1933: 297; the "Neg First Principle", so dubbed by Horn 1989: 203). The constraints Scope and $FNeg_1$ are very similar to the constraint NegAttract by de Swart (2010). However, in contrast to de Swart, I do not assume n-indefinites to be semantically negative but to be allomorphs (cf. Weiß 2002a): indefinites such as *jemand* 'somebody' and *niemand* 'nobody' or *ein* 'a' and *kein* 'no' are not different lexemes (despite being morphologically distinct) but only allomorphs, as proposed for *some* and *any* by Musolino et al. (2000), and their distribution depends on the context. In terms of lexical underspecification theory (cf. Wunderlich & Fabri 1995; Blevins 2000 and others) they can either be underspecified or specified with [+affect, +neg] (cf. Jäger 2010). Table 13 gives an overview of different indefinite systems instantiated by different languages (cf. Jäger 2010: 796, based on Weiß 2002a). I assume that the indefinite system in Alemannic corresponds to the one in Standard German and Polish in terms of the feature specification, but that is different to the German one as regards NC: in this respect, Alemannic behaves like Polish.

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12. I would like to thank Thilo Weber who pointed this out to me.

Table 13. Indefinite systems in different languages

Lexical feature specification	Slovene (+NC)	English (–NC)	Spanish (+NC)	Greek (–NC)	Polish (+NC)	German (–NC)
[ ]	kdo, kaj	somebody, something	alguien, algo	kapjos, kati	ktos, cos	jemand, etwas
[+affec]*	nekdo, nekaj	anybody, anything	nadie, nada	kanenas, tipota		
[+affect, + neg]	nikdo/ nihce, nic	nobody, nothing			nikt, nic	niemand, nichts

* [+affec] means that a negative polarity item such as *anything* requires a semantically affective context in order to be licensed.

As regards the ranking of the constraints I start with Grammar 1 and Grammar 4: The two grammars differ in the ranking of the constraints Scope and FNeg1 as for speakers of Grammar 1 it is more important to mark all indefinites in the scope of negation than for speakers of Grammar 4. In both grammars, FNEG_0 is the lowest-ranking constraint because both grammars use the marked form of negation, that is, the n-indefinite instead of the sentential marker plus indefinite. Table 14 and 16 show the optimal candidate with the input of one indefinite, Table 15 and 17 the optimal candidate with the input of two indefinites:

Table 14. Grammar 1 with one indefinite

¬ ∃x lesen 'read'(s,x)	SCOPE_2	FNEG_1	FNEG_0
Sie liest kein Buch nicht She reads no book not		*!	
☞ *Sie liest kein Buch* She reads no book			*
Sie liest ein Buch She reads a book	*!	*	
Sie liest ein Buch nicht She reads a book not	*!		

Table 15. Grammar 1 with two indefinites

¬∃x∃y *geben* 'give'(s,x,y)	SCOPE_2	FNEG_1	FNEG_0
Sie gibt keinem Menschen kein Geschenk nicht She gives no person no present not		*!	
Sie gibt einem Menschen ein Geschenk nicht She gives a person no present not	*!*	*	
Sie gibt keinem Menschen ein Geschenk She gives no person no present	*!		*

Table 15. (*continued*)

¬∃x∃y *geben* 'give'(s,x,y)	SCOPE$_2$	FNEG$_1$	FNEG$_0$
Sie gibt einem Menschen ein Geschenk She gives a person a present	*!*		*
☞ *Sie gibt keinem Menschen kein Geschenk* She gives no person no present			*
Sie gibt einem Menschen kein Geschenk She gives a person no present	*		*
Sie gibt einem Menschen kein Geschenk nicht She gives a person no present not	*	*	

Table 16. Grammar 4 with one indefinite

¬ ∃x **lesen** 'read' (s, x)	FNEG$_1$	SCOPE$_1$	FNEG$_0$
Sie liest kein Buch nicht She reads no book not	*!		
☞ *Sie liest kein Buch* She reads no book			*
Sie liest ein Buch She reads a book	*!	*	
Sie liest ein Buch nicht She reads a book not		*!	

Table 17. Grammar 4 with two indefinites

¬ ∃x ∃y *geben* 'give' (s, x, y)	FNEG$_1$	SCOPE$_1$	FNEG$_0$
Sie gibt keinem Menschen kein Geschenk nicht She gives no person no present not	*!	*	
Sie gibt einem Menschen ein Geschenk nicht She gives a person no present not	*!	*	
☞ *Sie gibt keinem Menschen ein Geschenk* She gives no person no present			*
Sie gibt einem Menschen ein Geschenk She gives a person a present		*!	*
Sie gibt keinem Menschen kein Geschenk She gives no person no present		*!	*
Sie gibt einem Menschen kein Geschenk She gives a person no present		*	*
Sie gibt einem Menschen kein Geschenk nicht She gives a person no present not	*	*	

Table 18. Grammar 2 with one indefinite

¬∃x lesen 'read'(s,x)	SCOPE$_2$	FNEG$_0$	FNEG$_1$
☞ *Sie liest kein Buch nicht* She reads no book not			*
☞ *Sie liest kein Buch* She reads no book		*	
Sie liest ein Buch She reads a book	*!		*
Sie liest ein Buch nicht She reads a book not	*!		

Table 19. Grammar 2 with two indefinites

¬ ∃x∃y *geben* 'give' (s,x,y)	SCOPE$_2$	FNEG$_0$	FNEG$_1$
☞ *Sie gibt keinem Menschen kein Geschenk nicht* She gives no person no present not			*
Sie gibt einem Menschen ein Geschenk nicht She gives a person no present not	*!*		*
Sie gibt keinem Menschen ein Geschenk She gives no person no present	*!	*	
Sie gibt einem Menschen ein Geschenk She gives a person a present	*!*	*	
Sie gibt keinem Menschen kein Geschenk She gives no person no present		*!	
Sie gibt einem Menschen kein Geschenk She gives a person no present	*	*	
Sie gibt einem Menschen kein Geschenk nicht She gives a person no present not	*		*

For Grammar 2, N-doubling is optional in the case of one indefinite. Optionality is nothing else than "the case of a single input being mapped onto two outputs, each of which is grammatical. This is 'free variation', also known as 'optionality'" (Kager 1999: 404). In this case two constraints are tied and are equally important because no empirical evidence can determine the ranking. Such a set of constraints is called a stratum (cf. Kager 1999: 288–299). The fact that variation is "free" does not imply that it is totally unpredictable, but only that no grammatical principles govern the distribution of variants (cf. Müller 2000: 189–224; Kager 1999: 404). Coming back to Grammar 2 the constraint that favors and the constraint that penalizes N-doubling are tied: FNEG$_0$ < > FNEG$_1$, see Table 18. Grammar 1 (obligatory N-spread) and Grammar 2 (optional N-doubling) differ in that these two constraints are (un)ranked to each other.

In the case of two indefinites, however, there is no variation any more so that $FNeg_0$ is higher-ranked than FNeg1 with only one optimal candidate in the output (see Table 19). Note that in Grammar 1 these two constraints are ranked inversely so that the speakers representing them use N-spread and not N-doubling.

Note that the pattern with two n-indefinites plus sentential negation is for all speakers of Grammar 2 only attested with the n-indefinite *koa* 'no/no one' (see (33)) so that it might be restricted to one certain combination, viz. *koa koa net* 'no no not'.

(33) aber *wenn uns* [(Pause)] *von uns **keener keine** Sache gemacht hat*
but if us [(pause)] from us no no thing made had
haben wir eine Ruhe gehabt
have we a rest had
'But if nobody from us got up to something we had some rest.'

(speaker 982 from E_00858, Zwirner)

Finally, there are few speakers of Alemannic left that use both negation types, that is, N-spread in the case of two indefinites as the input, and N-doubling in the case of one indefinite as the input. I subsumed those speakers under Grammar 3 and propose that their constraint ranking depends on the number of indefinites in the input: Whereas speakers of Grammar 1, 2 and 4 use the same constraint ranking independently from the input, speakers of Grammar 3 are sensitive to the number of indefinites and use either the ranking we already know from Grammar 1 (see Table 15) or the ranking we already know from Grammar 2 (see Table 18).

Let us now come back to the motivation of my proposal in OT (unmarked vs. marked and syntactic vs. morphological structures) and consider the findings from the second section with N-spread only as the preferred NC type. At first sight there seems to be a contradiction between the proposal and the empirical data: Grammar 1 (N-spread) which is used by the majority of Alemannic speakers is explained by a ranking in which $FNEG_0$ (realization of the input as sentential negation, thus the unmarked form) is the lowest-ranked constraint, whereas in Grammar 2 (N-doubling) with only few speakers $FNEG_0$ is higher-ranked. This apparent contradiction, however, disappears if we consider that the great majority of the world's languages use N-doubling (cf. Haspelmath 2005), and that Alemannic (and Hessian, cf. Weiß 2017) is the only German variety where N-spread – and not N-doubling – is used by the majority of the speakers (cf. Moser subm.).

3.4   Summary

We have seen that previous approaches towards NC can only partly explain the interspeaker and idiolectal variation attested in Alemannic. I have therefore proposed an analysis in which the ranking of the constraints $FNeg_0$, $FNeg_1$, $Scope_1$ and $Scope_2$ can account for the four different speaker grammars of NC attested in Alemannic (see Table 20).

Table 20. Constraint ranking in Alemannic

Grammar	ranking [input: $\neg\exists_1(\exists_2)$]	NC type
Grammar 1	$Scope_2 >> FNeg_1 >> FNeg_0$	obligatory N-spread
Grammar 2	$Scope_2 >> FNeg_0 <> / >> FNeg_1$	(optional) N-doubling
Grammar 3	$Scope_2 >> FNeg_1 >> FNeg_0$	obligatory N-spread and
	$Scope_2 >> FNeg_0 <> FNeg_1$	optional N-doubling
Grammar 4	$FNeg_1 >> Scope_1 >> FNeg_0$	no NC

Furthermore, the ranking is in line with micro- as well as macrotypological tendencies as regarding NC. Whereas de Swart's (2010) approach is situated at the syntax-semantic interface, my proposal resides at the syntax-morphology interface as it is based upon the following two assumptions: (1) weak indefinites (such as *any* or *some*) and n-indefinites are not different lexemes, but only allomorphs (cf. Weiß 2002a: 85 who also refers to Musolino, Crain & Thornton 2000); (2) the syntactic generation of structures is unmarked with respect to the morphological generation (cf. Ackema & Neeleman 2001; Vogel 2006).

3.5   A side note on the classification of NC types

In the first paragraph I introduced den Besten's (1996) classification of NC into N-doubling and N-spread which is based on the (non-)appearance of sentential negation. There are, however, also other proposals for the classification of NC structures, such as the one by Giannakidou (2000) or Haspelmath (1997). In order to distinguish between languages that require the obligatory presence of a sentential negation, Giannakidou (2000: 462) introduces the notion of strict and non-strict NC languages: Italian is a non-strict NC language because the sentential negation is only possible (with a NC reading) if the n-indefinite is placed post- and not preverbally (see (34) and (35)). Polish (36) and Greek (37), on the other hand, are strict-NC languages as the sentential negation is obligatory (cf. Giannakidou 2000: 461).

(34) ***Non ho   visto nessuno.***
      not   have-I seen nobody
      'I have not seen anybody.'   [NC reading]

(35)　a.　***Nessuno non è venuto.***
　　　　nobody　not　is　come
　　　　'Everybody came.'　　　　　　　　　　　　　　　[DN reading]

　　　b.　***Nessuno è venuto.***
　　　　Nobody　is　come
　　　　'Nobody came.'　　　　　　　　　　　　　　　　[NC reading]

(36)　**Nikt　nie** uderzyl **nigogo**.
　　　nobody　not　hit　　　nobody
　　　'Nobody hit anybody.'

(37)　**Kanenas dhen** ipe　**tipota**.
　　　nobody　not　said　nothing
　　　'Nobody said anything.'

In a similar vein as Giannakidou, Haspelmath (1997: 201) distinguishes three types with respect to sentential negation. As for the first type, n-indefinites always co-occur with verbal negation. This type corresponds to Giannakidou's strict-NC languages or den Besten's N-doubling. The second type indicates that n-indefinites never co-occur with verbal negation, that is, all DN languages such as Standard German or Standard English belong to this type. The third type is characterized by n-indefinites co-occurring with verbal negation under some circumstances. This type corresponds to Giannakidou's non-strict languages or to den Besten's N-spread. However, Haspelmath's as well as Giannakidou's typology cannot be applied to N-doubling (= Grammar 2) in Alemannic (or in Bavarian, cf. Weiß 1998, Moser subm.) for the following reasons: N-doubling in this variety is optional and this optionality does not depend on the pre-or postverbal position of the n-indefinite. Furthermore, N-spread is not attested for speakers of Grammar 2. Thus, it is impossible to take Grammar 2 as representing a non-strict NC language, but at the same time it is not a strict-NC language, either, because N-doubling is not obligatory. For this reason I would like to propose the classification I already introduced in terms of the four speaker grammars of Alemannic. The classification is based upon den Besten (1986) and renews a claim already made by van der Wouden & Zwarts (1993: 202) that languages may show either (a) N-spread or (b) N-doubling or (c) none of them or d) both.[13] In other words, my underlying assumption is that N-spread and N-doubling are two completely different structures that do not have any (implicational) relationship or typological correlation with each other. I propose that varieties should always be classified in terms of those

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13. Van der Wouden & Zwarts (1993), however, mean by the term "both" the combination of N-doubling and N-spread, such as e.g. *kein NP kein NP nicht* 'no NP no NP not' which I subsume under N-doubling because the presence of the sentential negation is the crucial difference between N-spread and N-doubling.

two taxonomic features.[14] My proposal includes the features 'double negation' [dn], which indicates that a variety or speaker does not have NC, N-spread [ns] (speaker with N-spread) and N-doubling [nd] (speaker with N-doubling). As regards the feature [ns] "almost none of the NC languages that have been thoroughly studied in the literature makes exclusive use of negative spread" (Giannakidou 2000: 460), and there are only few varieties using [ns] only (as far as I know): Alemannic, Hessian (cf. Weiß 2017), Middle Low German (cf. Breitbarth 2014: 151), and Ossetic (cf. Haspelmath 1997: 220). As for Hessian Weiß (2017) states that a lot of speakers still allow N-spread but no longer allow N-doubling, and he explains this with the fact that N-spread is more robust than N-doubling. I propose a classification like the one in Table 21 for German varieties (including diachrony). The distribution of NC types in German varieties is based on Moser (subm.), for Bavarian and Hessian see also Weiß (1998, 2017), for Middle Low German Breitbarth (2014: 151) and Jäger (2008: 207) for Old High German.

Table 21. NC in German

	[dn]	[ns]	[nd]
German	+		
Alemannic, Hessian, Middle Low German		+	
Low/East Central German, Old High German			+
Bavarian, West Central German		+	+

In Table 22, I extend the classification to a few other (Indo-European) varieties (Ossetic belonging to the Iranian language family).

Table 22. NC typologically

	[dn]	[ns]	[nd]
Dutch, English	+		
Ossetic		+	
Polish, Greek			+
Italian, Spanish		+	+

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14. I have to admit that this classification does not take into account whether a type is optional or constrained in a certain way.

4.   Conclusion

Based on a broad data set in which I extracted partial grammars of individuals we have seen that negation in Alemannic can be realized in the form of N-spread (Grammar 1), N-doubling (Grammar 2), both types (Grammar 3) or no NC (Grammar 4). I then proposed an analysis in the framework of Optimality Theory that can account for those four different speaker grammars and that includes not only the attested variation between grammars but also within grammars. The majority of the Alemannic speakers use N-spread, which is typologically rare, but which can be explained by the constraint ranking that is in line with micro- and macrotypological tendencies. The proposal resides at the syntax-morphology interface as it is motivated (1) by Weiß's idea that weak indefinites and n-indefinites are not different lexemes but only allomorphs and (2) by Ackema & Neeleman's and Vogel's assumption that syntactic realization is preferred over morphological realization.

References

Ackema, Peter & Neeleman, Ad. 2001. Competition between syntax and morphology. In *Optimality-theoretic Syntax*, Géraldine Legendre, Jane Grimshaw & Sten Vikner (eds), 29–60. Cambridge MA: The MIT Press.

ALCORP Alemannisch auf spontansprachlicher Basis: Collection of interviews from Arbeitsstelle Sprachvariation in Baden-Württemberg (University of Freiburg), Südwestdeutscher Sprachatlas, Badisches Wörterbuch, made available by Guido Seiler.

Badisches Wörterbuch. 1925–. Ernst Ochs, Karl Friedrich Müller, Tobias Streck et. al. Berlin: De Gruyter. Lahr i. Br.: Schauenburg. München: Oldenbourg.

Bayer, Josef. 2009. Nominal negative quantifiers as adjuncts. *The Journal of Comparative Germanic Linguistics* 12: 5–30. https://doi.org/10.1007/s10828-009-9023-y

Bernini, Giuliano & Ramat, Paolo. 1996. *Negative Sentences in the Languages of Europe*. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110819748

den Besten, Hans. 1986. Double negation and the genesis of Afrikaans. In *Substrata versus Universals in Creole Genesis* [Creole Language Library 1], Pieter Muysken & Norval Smith (eds), 185–230. Amsterdam: John Benjamins. https://doi.org/10.1075/cll.1.10bes

Binz, Gustav. 1888. *Zur Syntax der baselstädtischen Mundart*. Stuttgart: Kröner.

Blevins, James. 2000. Markedness and blocking in German declensional paradigms. In *Lexicon in Focus*, Barbara Stiebels & Dieter Wunderlich (eds), 83–103. Berlin: Akademie-Verlag.

Bossard, Hans. 1962. *Zuger Mundartbuch. Grammatik und Wörterverzeichnisse. Ein Wegweiser zur guten Mundart*. Zürich: Schweizer Spiegel-Verlag.

Bratschi, Armin & Trüb, Rudolf. 1991. *Simmentaler Wortschatz. Wörterbuch der Mundart des Simmentals (Berner Oberland). Mit einer grammatischen Einleitung und mit Registern*. Thun: Ott.

Braunstein, Hermann. 1978. *Der Dialekt des Dorfes Schutterwald (Ortenaukreis). Grammatik und Wortschatz*. Schutterwald: Selbstverlag.

Breitbarth, Anne. 2014. *The History of Low German Negation*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199687282.001.0001

Bresnan, Joan. 2001. Explaining morphosyntactic competition. In *The Handbook of Contemporary Syntactic Theory*, Mark Baltin & Chris Collins (eds), 11–44. Oxford: Blackwell. https://doi.org/10.1002/9780470756416.ch1

Bresnan, Joan. 2002. The lexicon in Optimality Theory. In *The Lexical Basis of Sentence Processing. Formal, Computational and Experimental Issues* [Natural Language Processing 4], Paolo Merlo & Suzanne Stevenson (eds), 39–58. Amsterdam: John Benjamins. https://doi.org/10.1075/nlp.4.03bre

Bresnan, Joan, Deo, Ashwini & Sharma, Devyani. 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. https://doi.org/10.1017/S1360674307002274

Brown, Sue. 1999. *The Syntax of Negation in Russian: A Minimalist Approach*. Stanford CA: CSLI.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge MA: The MIT Press.

Corblin, Francis & Tovena, Lucia. 2003. L'expression de la negation dans les languages romanes. In *Les langues romanes: Problèmes de la phrase simple*, Danièle Godard (ed.), 279–342. Paris: CNRS Editions.

Diesing, Molly. 1992. *Indefinites*. Cambridge MA: The MIT Press.

Espinal, Teresa M. 2001. On the semantic status of n-words in Catalan and Spanish. *Lingua* 110: 557–580. https://doi.org/10.1016/S0024-3841(00)00002-4

Fischer, Ludwig. 1989. *Luzerndeutsche Grammatik. Ein Wegweiser zur guten Mundart.* Hitzkirch: Comenius-Verlag.

Fleischer, Jürg. 2002. *Die Syntax von Pronominaladverbien in den Dialekten des Deutschen: eine Untersuchung zu Preposition Stranding und verwandten Phänomenen* [Zeitschrift für Dialektologie und Linguistik Beihefte 123]. Stuttgart: Franz Steiner.

Giannakidou, Anastasia. 2000. Negative … concord? *Natural Language and Linguistic Theory* 18: 457–523. https://doi.org/10.1023/A:1006477315705

Giannakidou, Anastasia. 2006. N-words and negative concord. In *The Blackwell Companion to Syntax*, Vol. 3, Martin Everaert, Henk van Riemsdijk, Rob Goedemans & Bart Hollebrandse (eds), 327–391. Oxford: Blackwell, https://doi.org/10.1002/9780470996591.ch45

Günther, Johannes. 1967. Die städtische Umgangssprache von Freiburg im Breisgau. Eine sprachsoziologische Untersuchung. PhD dissertation, University of Freiburg i. Br.

Haegeman, Liliane & Lohndal, Terje. 2010. Negative concord and multiple Agree: A case study of West Flemish. *Linguistic Inquiry* 41: 181–211. https://doi.org/10.1162/ling.2010.41.2.181

Haspelmath, Martin. 1997. *Indefinite Pronouns.* Oxford: Clarendon Press.

Haspelmath, Martin. 2005. Negative indefinite pronouns and predicate negation. In *The World Atlas of Language Structures*, Martin Haspelmath, Matthew S. Dryer, David Gil & Bernard Comrie (eds), Ch. 115, 466–469. Oxford: OUP.

Haegeman, Liliane. 1995. *The Syntax of Negation* [Cambridge Studies in Linguistics 75]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511519727

Haegeman, Liliane & Zanuttini, Rafaella. 1996. Negative concord in West Flemish. In *Parameters and Functional Heads. Essays in Comparative Syntax*, Adriana Belletti & Luigi Rizzi (eds), 117–179. Oxford: OUP.

Herburger, Elena. 2001. The negative concord puzzle revisited. *Natural Language Semantics* 9: 289–333. https://doi.org/10.1023/A:1014205526722

Hiraiwa, Ken. 2001. Multiple agreement and the defective intervention effect. In *The Proceedings of the MIT-Harvard Joint Conference (HUMIT 2000)*, Ora Matsushansky (ed.), 67–80. Cambridge MA: MITWPL.

Hodler, Werner. 1969. *Berndeutsche Syntax.* Bern: Francke.

Horn, Laurence. 1989. *A Natural History of Negation.* Chicago IL: The University of Chicago Press.

Jäger, Agnes. 2008. *History of German Negation* [Linguistics Today 118]. Amsterdam: John Benjamins. https://doi.org/10.1075/la.118

Jäger, Agnes. 2010. Anything is nothing is something. On the diachrony of polarity types of indefinites. *Natural Language and Linguistic Theory* 28: 787–822. https://doi.org/10.1007/s11049-010-9113-1

Jäger, Agnes & Penka, Doris. 2012. Development of sentential negation in the history of German. In *Comparative Germanic Syntax: The State of the Art*, Peter Ackema, Rhona Alcorn, Caroline Heycock, Dany Jaspers, Jeroen van Craenenbroeck & Guido Vanden Wyngaerd (eds), 199–222. Amsterdam: John Benjamins. https://doi.org/10.1075/la.191.07jag

Jespersen, Otto. [1933] 1964. *Essentials of English Grammar.* Reprint. Tuscaloosa AL: University of Alabama Press.

Jutz, Leo. 1960/1965. *Vorarlbergisches Wörterbuch. Mit Einschluss des Fürstentums Liechtenstein*, hg. von der Österreichischen Akademie der Wissenschaften, bearb. von Leo Jutz, Wien.

Kager, René. 1999. *Optimality Theory.* Cambridge: CUP. https://doi.org/10.1017/CBO9780511812408

von Keller, Adelbert & Fischer, Hermann (eds) 1914. *Schwäbisches Wörterbuch,* Vol. 4. Tübingen: Verlag der H. Laupp'schen Buchhandlung.

Klausmann, Hubert, Kunze, Konrad & Schrambke, Renate. 1997. *Kleiner Dialektatlas*, 3rd edn. Bühl (Baden): Konkordia-Verlag.

Kortmann, Bernd & Lunkenheimer, Kerstin (eds). 2013. *The electronic World Atlas of Varieties of English Leipzig*: Feature 154. Leipzig: Max Planck Institute for Evolutionary Anthropology. <https://ewave-atlas.org/> (23 August 2018).

Ladusaw, Bill. 1992. Expressing negation. In *SALT II*, Chris Barker & David Dowty (eds), 237–259. Ithaca NY: Cornell Linguistic Circle.

Laka, Itziar. 1990. Negation in Syntax: On the Nature of Functional Categories and Projections. PhD dissertation, MIT.

Lorez-Brunold, Christian & Lorez-Brunold, Tilly. 1987. *Rheinwalder Mundartwörterbuch. Der Wortschatz einer Bündner Walsermundart*. Chur: Terra-Grischuna-Buchverlag.

Marti, Werner. 1985. *Berndeutsch-Grammatik für die heutige Mundart zwischen Thun und Jura*. Bern: Francke.

Moser, Ann-Marie. Submitted. Zur Syntaxgeografie der doppelten Negation in den deutschen Dialekten. Der bairische und der alemannische Typ. *Linguistik Online*, Themenheft.

Muller, Robert. 1983. *Le parler de Colmar et des localités limitrophes. Dictionnaire, morphologie, phonétique, syntaxe*. Colmar: Published by the author himself.

Musolino, Julien, Crain, Stephen & Thronton, Rosalind. 2000. Navigating the quantificational space. *Linguistics* 38: 1–32. https://doi.org/10.1515/ling.38.1.1

Müller, Gereon. 2000. *Elemente der optimalitätstheoretischen Syntax*. Tübingen: Stauffenburg.

Muster, Hans Peter & Bürkli Flaig, Beatrice. 2001. *Baselbieter Wörterbuch*. Basel: Christoph-Merian-Verlag.

Noth, Harald. 1993. *Alemannisches Dialekthandbuch vom Kaiserstuhl und seiner Umgebung*. Freiburg i. Br.: Schillinger.

Payne, John. 1985. Negation. In *Language Typology and Syntactic Description,* Vol. 1: *Clausal Structure*, Timothy Shopen (ed.), 197–242. Cambridge: CUP.

Penka, Doris. 2011. *Negative Indefinites*. Oxford: OUP.

Pollock, Jean-Yves. 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20: 365–424.

Richli, Alfred & Gallmann, Heinz (eds). 2003. *Schaffhauser Mundartwörterbuch*. Schaffhausen: Meier Buchverlag.

Ruoff, Arno. 1984. *Alltagstexte, I: Transkriptionen von Tonbandaufnahmen aus Baden-Württemberg und Bayerisch-Schwaben* [Idiomatica 10]. Tübingen: Max Niemeyer.

Ruoff, Arno. 1985. *Alltagstexte, II: Transkriptionen von Tonbandaufnahmen aus Baden-Württemberg, Vorarlberg und Liechtenstein* [Idiomatica 11]. Tübingen: Max Niemeyer.

Ruoff Corpus: Collection of yet unpublished interviews by Arno Ruoff, made available by Oliver Schallert.

SADS 2000–. Dialektsyntax des Schweizerdeutschen. Survey under the direction of Elvira Glaser.

Schmidt, Jürgen E. & Herrgen, Joachim. 2011. Sprachdynamik. Eine Einführung in die moderne Regionalsprachenforschung [Grundlagen der Germanistik 49]. Berlin: Erich Schmidt.

Schweizerisches Idiotikon. 1881–. Wörterbuch der schweizerdeutschen Sprache. Beg. von Friedrich Staub und Tobler, fortg. unter der Leitung von Albert Bachmann, Otto Gröger, Hans Wanner, Peter Dalcher, Peter Ott und Hans-Peter Schifferle. Verlag Huber: Frauenfeld (Bände I–XVI). Basel: Schwabe Verlag (Band XVII).

Seiler, Guido. 2010. Investigating language in space: questionnaire and interview. In *Language and Space: An International Handbook of Linguistic Variation*, Vol. 1: *Theories and Methods*, Peter Auer, Jürgen E. Schmidt (eds), 512–527. Berlin: Mouton de Gruyter.

Staedele, Alfons. 1927. *Syntax der Mundart von Stahringen*. Lahr i. Br.: Schauenburg.

Steger, Hugo & Jakob, Karlheinz. 1983. *Raumgliederung der Mundarten. Vorstudien zur Sprach- kontinuität im deutschen Südwesten* [Arbeiten zum Historischen Atlas von Südwestdeutsch- land 7). Stuttgart: Kohlhammer.

Südwestdeutscher Sprachatlas (SSA). 1974–1986. Forschungsstelle Sprachvariation in Baden- Württemberg, Universität Freiburg.

Suter, Rudolf 1992. *Baseldeutsch-Grammatik*, 3rd rev. edn. Basel: Christoph-Merian-Verlag.

Swart, Henriëtte de. 2006. Marking and interpretation of negation: A bi-directional OT ap- proach. In *Negation, Tense and Clausal Architecture: Cross-linguistic Investigation*s, Rafaella Zanuttini, Héctor Campos, Elena Herburger & Paul Portner (eds), 199–218. Washington DC: Georgetown University Press.

de Swart, Henriëtte. 2010. *Expression and Interpretation of Negation. An OPT Typology* [Studies in Natural Language and Linguistic Theory 77]. Dordrecht: Springer. https://doi.org/10.1007/978-90-481-3162-4

SyHD: *SyHD-Atlas. Projekt Syntax Hessischer Dialekte*, Jürg Fleischer, Alexandra Lenz & Helmut Weiß (eds), <http://www.syhd.info/werkzeuge/syhd-atlas/> (30 May 2018).

SynAlm 2011–2016. *Syntax des Alemannischen*. Survey under the direction of Ellen Brandner (made available by Ellen Brandner).

Ura, Hiroyuki. 1996. Multiple Feature-checking: A Theory of Grammatical Function Splitting. PhD dissertation, MIT.

Vogel, Ralf. 2006. The simple generator. In *Optimality Theory and Minimalism. A possible Con- vergence?* [Linguistics in Potsdam 25], Hans Broekhuis & Ralf Vogel (eds), 99–136. Pots- dam: Universitätsverlag.

Vogt, Friedrich E. 1977. *Schwäbisch in Laut und Schrift. Eine ergründende und ergötzliche Sprachlehre*. Stuttgart: Steinkopf.

Weber, Albert. 1923. *Zürichdeutsche Grammatik und Wegweiser zur guten Mundart*. Zürich: Schweizer Spiegel Verlag.

Weiß, Helmut. 1998. Syntax des Bairischen. *Studien zur Grammatik einer natürlichen Sprache* [Linguistische Arbeiten 391], Tübingen: Niemeyer. https://doi.org/10.1515/9783110912487

Weiß, Helmut. 2002a. Indefinite pronouns. Morphology and syntax in cross-linguistic perspec- tive. In *Pronouns – Grammar and Representation* [Linguistics Today 52], Horst Simon & Heike Wiese (eds), 85–107. Amsterdam: John Benjamins. https://doi.org/10.1075/la.52.08wei

Weiß, Helmut. 2002b. A quantifier approach to negation in natural languages. Or why negative concord is necessary. *Nordic Journal of Linguistics* 25(2): 125–153. https://doi.org/10.1080/033258602321093346

Weiß, Helmut. 2004. A question of relevance. Some remarks on standard languages. In *What Counts as Evidence in Linguistics? The Case of Innateness* [Studies in Language 28(3)], Mar- tina Penke & Anette Rosenbach (eds), 648–674; 680–681. Amsterdam: John Benjamins.

Weiß, Helmut. 2017. Doppelte negation. Map commentary. In *SyHD*, <http://www.syhd.info/ apps/atlas/#doppelte-negation> (30 May 2018).

van der Wouden, Ton & Zwarts, Frans. 1993. A semantic analysis of negative concord. In *SALT III*, Uptal Lahiri & Adam Wyner (eds), 202–219. Ithaca NY: Cornell University.

Wiesinger, Peter. 1983. Die Einteilung der deutschen Dialekte. In *Dialektologie* [Handbooks of Linguistics and Communication Science (HSK) 1/2], Werner Besch (ed.), 807–900. Berlin: Mouton de Gruyter. https://doi.org/10.1515/9783110203332.807

Willis, David, Lucas, Christopher & Breitbarth, Anne. 2013. Comparing diachronies of negation. In *The History of Negation in the Languages of Europe and the Mediterranean*, David Willis, Christopher Lucas & Anne Breitbarth (eds), 1–50. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199602537.003.0001

Wunderlich, Dieter & Fabri, Ray. 1995. Minimalist morphology: An approach to inflection. *Zeitschrift für Sprachwissenschaft* 14: 236–294. https://doi.org/10.1515/zfsw.1995.14.2.236

Zanuttini, Rafaella. 1991. Syntactic Properties of Sentential Negation. PhD dissertation, University of Pennsylvania.

Zeijlstra, Hedde. 2004. Sentential Negation and Negative Concord. PhD dissertation, University of Amsterdam.

Zeijlstra, Hedde. 2012. There is only one way to agree. *The Linguistic Review* 29: 491–453. https://doi.org/10.1515/tlr-2012-0017

Zeijlstra, Hedde. 2015. The morpho-syntactic realization of sentential negation. In *The International Syntax Handbook*, Artemis Alexiadou & Tibor Kiss (eds), 275–310. Berlin: Mouton de Gruyter.

Zwirner Corpus: Collection of interviews from Eberhard Zwirner, made available by the IDS Mannheim, Datenbank für Gesprochenes Deutsch. <https://dgd.ids-mannheim.de/> (23 August 2018).

A. Appendix

Grammatical sources mentioned in Section 2.2:
Badisches Wörterbuch (1925–), Binz (1888), Bossard (1962), Bratschi & Trüb (1991), Braunstein (1978), Fischer (1989), Günther (1967), Hodler (1969), Lorez-Brunold & Lorez-Brunold (1987), Marti (1985), Muller (1983), Muster & Bürkli (2001), Noth (1993), Schaffhauser Wörterbuch (2003), Schwäbisches Wörterbuch (von Keller & Fischer 1914), Schweizerisches Idiotikon (1881–), Staedele (1927), Suter (1992), Vogt (1977), Vorarlbergisches Wörterbuch (1995), Weber (1923).

Number of n-indefinites and combinations mentioned in Section 2.2:
As for the Tables A1 to A3, please consider that I am interested in the (partial) grammars of individuals. I therefore did not count the number of N-spread structures but the number of speaker grammars where a certain syntactic pattern is attested.

Table A1. Number of speakers using N-spread with/without *koa* 'no/no one'

	Zwirner	Ruoff	ALCORP
with *koa* 'no/no one'	17	86	7
without *koa* 'no'	4	28	5

Table A2. Number of speakers using N-spread in the form of an adverb plus argument/only arguments/only adverbs

	Zwirner	Ruoff	ALCORP
adverb argument	11	61	9
only arguments	7	26	9
only adverbs		1	

Table A3. Number of speakers using N-spread with *nia* 'never'/*nirgeds* 'nowhere'

	Zwirner	Ruoff	ALCORP
with *nia* 'never'	8	54	6
with *nirgeds* 'nowhere'	3	25	4

Percentages (of speakers) mentioned in Section 2.3:

Table A4. Distribution of NC types in SynAlm

	Baden-Württemberg	Switzerland	Alsace	Vorarlberg
N-spread	37%	32%	100%	34%
N-doubling	2%	2%	–	
both types	10%	–	–	
total speakers	184	96	2	6

Variation in non-finiteness
and temporality from a canonical perspective

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In this paper, I take widely varying data on the occurrence and acceptability of overt future infinitives in German as evidence for their current emergence. Such a change, however, seems to conflict with a (tentative) prediction from Canonical Typology: Temporally marked infinitives are less canonical than temporally unmarked ones but change is expected to lead to the more canonical. The aim of the contribution is to save the prediction by bringing the canonical notion of non-finiteness closer to the original core of this framework.

1. Introduction

It has long been known that researching variation means doing typology from a micro-perspective. Thus, typological frameworks are relevant in variational linguistics. One of these frameworks, and a rather recent one, is Canonical Typology (cf., e.g., Corbett 2012: Chapter 6). In the present paper, this framework will be introduced (rest of Section 1), put to the test using data from German (Section 2), and tentatively modified by replacing its criteria for (non-)finiteness (Section 3).

The main characteristic and main asset of Canonical Typology is that it allows us to compare the incomparable. Categories are neither fixed nor fuzzy, but canonical ideals, each defined by a bundle of criteria. This means that for every given phenomenon one can tell precisely in which respects it fits the category and in which it doesn't. However, in order to count as a canonical ideal, a category has to meet certain requirements. These are laid out in detail for the fundamental categories, i.e. features, in Corbett (2012: 155–198) and might be illustrated best by two invented paradigms (see Table 1).

Table 1. Feature X, intersecting with feature Y (for part of speech A, which is semantically compatible with both features)

	Value y$_1$	*Value y$_2$*	*Value y$_3$*
Value x$_1$	STEM.POS$_A$-mun-fot-a-s	STEM.POS$_A$-mun-fot-a-n	STEM.POS$_A$-mun-fot-a-m
Value x$_2$	STEM.POS$_A$-mun-fot-e-s	STEM.POS$_A$-mun-fot-e-n	STEM.POS$_A$-mun-fot-e-m
Value x$_3$	STEM.POS$_A$-mun-fot-i-s	STEM.POS$_A$-mun-fot-i-n	STEM.POS$_A$-mun-fot-i-m

In Table 1 you can see that each feature has its dedicated form (*mun-* vs. *fot-*) and the same holds for the values (*-a-* vs. *-e-* vs. *-i-*; *-s* vs. *-n* vs. *-m*) (Corbett 2012: 156; cf. also Corbett 2011: 450). Each marker is, in terms of types, different from all the others and stays the same throughout the paradigms (Corbett 2012: 158; cf. also Corbett 2011: 452). Nothing depends on the part of speech, as witnessed by Table 2 (Corbett 2012: 162; cf. also Corbett 2011: 455), or the particular stem involved (Corbett 2012: 163; cf. also Corbett 2011: 456). Importantly, in both tables all nine cells, which result from cross-tabulating two features with three values respectively, are filled (Corbett 2012: 197), and the structure of their entries is identical (Corbett 2012: 197–198). Moreover, the two paradigms are to be understood as absolute in a certain sense: The forms convey meaning independently (i.e. without the help of any other forms), their use is to be thought of as obligatory (in particular: not conditioned by any other level of linguistic description like syntax or lexical semantics) and, generally, syntax is considered to be blind to morphology (Corbett 2012: 191–197).

Table 2. Feature X, intersecting with feature Y (for part of speech B, which is semantically compatible with both features)

	Value y$_1$	*Value y$_2$*	*Value y$_3$*
Value x$_1$	STEM.POS$_B$-mun-fot-a-s	STEM.POS$_B$-mun-fot-a-n	STEM.POS$_B$-mun-fot-a-m
Value x$_2$	STEM.POS$_B$-mun-fot-e-s	STEM.POS$_B$-mun-fot-e-n	STEM.POS$_B$-mun-fot-e-m
Value x$_3$	STEM.POS$_B$-mun-fot-i-s	STEM.POS$_B$-mun-fot-i-n	STEM.POS$_B$-mun-fot-i-m

Obviously, these paradigms are too neat to be true and this is what they are supposed to be: idealizations. Starting from an idealization, real world phenomena can be described as specific deviations from the ideal. For example, in English the feature GENDER is visible in pronouns only and thus English GENDER violates the criterion that the values be formally distinguishable across parts of speech (Corbett 2012: 162). By comparison, in German the same feature is visible in articles, adjectives, and pronouns, so in this respect German deviates less from the canonical ideal than English does (ibid.). Please note that Canonical Typology differs crucially from Prototype Theory in that a prototype is always realizable, at least by approximation (Corbett 2012: 155).

To this point it has been illustrated how to set up a canonical ideal for features and their values, i.e. for the fundamental categories. Now the question is how to devise a canonical ideal for more complex categories like (non-)finiteness. As far as I can see, there are no guidelines for this within the core canonical literature. However, Nikolaeva (2013) suggests the following criteria for assessing the degree to which a given clause is canonically finite (> = 'canonically more finite than').

Morphological criteria
C-1 tense marking > no tense marking
C-2 subject agreement > no subject agreement
C-3 mood and/or illocutionary force marking > no mood and/or illocutionary force marking
C-4 politeness marking > no politeness marking
C-5 evidential marking > no evidential marking
C-6 no switch-reference marking > switch-reference marking
C-7 nominative subject > non-nominative subject   (Nikolaeva 2013: 105–108)

Syntactic criteria
C-8 independent clause > dependent clause
C-9 subject licensing > no subject
C-10 morphosyntactic expression of information structure > no morphosyntactic expression of information structure   (Nikolaeva 2013: 108–109)

Semantic criteria
C-11 assertion > no assertion
C-12 independent temporal anchoring > no independent temporal anchoring
C-13 information structuring > no information structuring
(Nikolaeva 2013: 113–116)

So the canonical ideal of a finite clause is one that displays all of the properties listed on the left, from tense marking to information structuring; accordingly, the canonical ideal of a non-finite form shows all of the properties listed on the right.[1] From a typological point of view, this seems natural (cf. also the literature cited by Nikolaeva). And yet, one may wonder: Where has the spirit of the original approach gone? Whereas the setup of a canonical ideal for the fundamental categories, i.e. features and their values, proceeded on a purely formal basis, the setup of a canonical ideal for a more complex category, in this case finiteness, largely seems to draw upon what is actually found in the languages of the world. Certainly, this is a

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1.   Obviously, there is much to say about the precise definition of each of these terms. Since they are Nikolaeva's terms, I will try to follow her definitions as closely as possible when applying the criteria.

legitimate way of doing what Bond calls "retrospective canonical typology", i.e. not being concerned with the base (here: clauses) in the first place (Bond 2013: 24–25). Even within a retrospective approach, however, the canonical ideal can be set up the one way or the other. In any case, Nikolaeva's definition of (non-)finiteness is the one given in the canonical literature, so, for the time being, I will work with it (however, see Section 3 for discussion).

Besides (non-)finiteness, also another category relevant for this paper has received a canonical definition, i.e. periphrasis. It reads as follows:

> a cell in a ([…]) inflectional paradigm ([…]) is expressed by a multiword construction which respects the canonical properties of functional syntax
>
> (Brown et al. 2012: 233)

The fine details of this definition might be debatable; however, for present purposes I will take it at face value. Crucially, according to this definition, periphrasis is located at the interface of morphology and syntax – which might make it prone to variation. Please note that for the purposes of this paper, I assume all those multi-word expressions to be periphrases that are usually considered part of the German verbal paradigm (cf. Helbig & Buscha 2001: 23–25), regardless of how canonically periphrastic they are.

These two definitions will serve as the backdrop for the following two sections. Additionally, the very notion of (non-)finiteness will take centre stage again in Section 3. Now all relevant aspects of Canonical Typology have been introduced, apart from one: Although, for the most part, Canonical Typology focuses on synchrony, there are also some diachronic considerations – in particular, Corbett, albeit rather cautiously, suggests the possibility that change leads from the less canonical to the more canonical (Corbett 2011: 476; Corbett 2012: 199). This tentative prediction will be tested in Section 2.

2.   Methodology and data discussion

As announced earlier, in this section Canonical Typology will be put to the test using data from German. More specifically, and more modestly, the questions are:

1. How canonically finite (resp.: non-finite) are certain kinds of German clauses according to Nikolaeva's criteria?
2. Is there variation and/or change in progress? If there is change in progress: Is Corbett's tentative prediction that change leads from the less canonical to the more canonical borne out?

These questions will be addressed successively by the following subsections.

2.1 Finiteness in German

Consider the following sentences from German, in particular the clauses including *arbeit-*.

(1) Er arbeitet.
he works
'He is working.'

(2) Er behauptet, dass er arbeitet.
he claims   that he works
'He claims that he is working.'

(3) Er behauptet, *zu*   *arbeit-en.*
he claims   IPART work-INF
'He claims to be working.'

(4) [Er behauptet, *dass er arbeiten kann.*]
he claims   that he work   can
'He claims that he is able to work.'

Judging from traditional accounts, the *arbeit*-clauses in (1) and (2) stand good chances to be considered canonically finite, whereas the *arbeit*-clause in (3) stands a good chance to be considered canonically non-finite. In the following paragraphs this expectation will be checked using Nikolaeva's criteria with acceptability judgements being my own. Please note that the sentence in brackets, i.e. (4), cannot be taken into account, since the candidate for being non-finite here is just a single verb (*arbeiten*) in a mono-clausal structure, while Nikolaeva's definition refers to clauses (e.g., *zu arbeiten*, which I take to be a clause), like Givón's much cited definition does (Givón 1990: 853).

The first set of criteria consists of *morphological properties*, starting with tense marking (C-1). This criterion will feature prominently in the rest of the paper, so it deserves some comment. Sometimes, the term *tense* is used in a rather loose sense, i.e. 'location of an event in time' – without any definite restriction on how the particular place in time is to be identified (e.g., Bybee 2003: 223–224). Others are stricter in requiring that the location be identified relative to the time of utterance (e.g., Dowty 1991[1979]: 52; Klein 1994: 6). Nikolaeva's definition appears to belong to the first group, since in her introduction to the collected volume "Finiteness" she cites an example from West Greenlandic as showing future tense and the original source specifies that all tenses in West Greenlandic are relative (Nikolaeva 2007: 3; Fortescue 1984: 272, cf. also Nikolaeva 2013: 107). Thus, when evaluating the German clauses above according to Nikolaeva's criteria, tense has to be understood in the first, more general sense: there might be a relation to the time of utterance but not necessarily.

With these comments in mind, consider the *arbeit*-clauses above.[2] According to C-1, i.e. tense marking, the examples seem to behave as expected. (1) and (2) involve a present tense marking (provided that the German present is not an "Un-Tempus", cf. Zeller 1994: 67–75) and might be put in any tense usually assumed for German, i.e. preterite, perfect, past perfect, future, and future perfect.[3] See (5) through (9) as modifications of (1). The respective modifications of (2) basically work the same way, apart from constituent order; so these are not shown here.

(5) Er arbeite-te.
    he work-PST.3SG
    'He worked.'

(6) Er hat   ge-arbeit-et.
    he has   PST.PTCP-work-PST.PTCP
    'He worked.' or 'He has worked.'

(7) Er hatte ge-arbeit-et.
    he had   PST.PTCP-work-PST.PTCP
    'He had worked.'

(8) Er wird arbeit-en.
    he will work-INF
    'He will work.' or 'Presumably, he is working.'

(9) Er wird ge-arbeit-et   ha-ben.
    he will PST.PTCP-work-PST.PTCP have-INF
    'He will have worked.'

By contrast, (3) does not show any sign of tense (provided that particle infinitives are *not* inherently future-tensed, cf. Martin 2001: 147; for discussion cf. Subsection 2.2). However, it is possible to modify this example in order to express anteriority, see (10).

(10) Er behauptet, (gestern)   ge-arbeit-et   zu   hab-en.
     he claims   (yesterday) PST.PTCP-work-PST.PTCP IPART have-INF
     'He claims to have worked (yesterday).'

---

2. In what follows, numbers are usually intended to refer to those clauses, not to the entire example at hand.

3. Deviations from the standard list include, on the one hand, deleting all tenses but the preterite (cf. Thieroff 1992: 62–64) and, on the other hand, adding further tenses, especially double forms with past reference (cf. Rothstein 2013: 101–102). The first case does not change the present conclusion; for the second case I assume that these tenses, too, are available, e.g., *Er hat gearbeitet gehabt* (double perfect). Please note that, apart from the preterite and the present, all possible tenses are periphrastic.

According to the broad definition of tense adopted here, this example constitutes a relevant case of tense marking (cf. also Gaeta 2013: 584 et passim, who chooses to speak of *past infinitives*), although others would certainly count it as aspectual (cf., e.g., Abraham 2004: 116–117). So the initial expectation is not confirmed: (3) is not canonically non-finite. Put differently: canonical non-finites are supposed to lack temporal versions but (3) does possess such a version.

C-2, i.e. subject agreement, again yields the expected results: (1) and (2) display agreement with *er*, while (3) does not. Strictly speaking, the tense as well as the person and number value are all fused in the morpheme *-et*. Since German verbs do not agree in gender with their subject, all available options for agreement are exhausted. There is an interesting aspect here. Suppose, a given language has maximally one agreeing feature and a given clause realizes agreement with respect to this feature, while another language has a maximum of three agreeing features and a clause realizes agreement in two of them. Presumably, the clause from the former language would count as more canonically finite than the clause from the latter, although it agrees in fewer features. The reason for this is that in the first case all options offered by the language system at hand are exploited, while in the second case they are not. So evaluating linguistic material against criteria of canonicity might involve language-specific considerations at some point, although the canonical ideal in itself is universally applicable (also cf. the number of cells in a paradigm, mentioned in Section 1).

Criterion C-3, i.e. mood and/or illocutionary force marking, is a bit more difficult to evaluate, since it merges the two categories and no explicit general definition of *mood* is given (Nikolaeva 2007: 105). Still, the cases are rather easy to decide. (1) and (2) are in the indicative, so they fulfil the left-hand side of C-3, provided that the indicative is a value of mood and not just a default. Also the two "real" values of mood usually assumed for German, i.e. *Konjunktiv I* (for quotations) and *Konjunktiv II* (for counterfactuality)[4] are available, see (11) and (12) below (like above, modifications are demonstrated for (1) only, since they would be analogous for (2)).

(11) Er arbeit-e
      he work-QUOT
      'He is working [according to the source].'

(12) Er arbeite-te. [homonymous to the preterite]
      he work-COUNTERFACT
      'He would work.'

---

4. The functions mentioned in brackets seem to be the prevalent ones. However, cf. Zifonun et al. (1997: 1751) for another use of both the *Konjunktiv I* and the *Konjunktiv II*. Further, there are optative uses, which are, however, severely restricted (Zifonun et al. 1997: 663–671).

(3), i.e. *Er behauptet zu arbeiten*, by contrast, does not involve anything that is usually considered a marker of mood and cannot be modified to that end, either. What about markers of illocutionary force, then? They do not need to be taken into consideration here, since C-3 is a morphological criterion and German is known to lack morphological markers of illocutionary force like Finnish *-ko* for questions.[5] Interestingly, there is no directly corresponding syntactic criterion. A criterion of the latter type would be applicable to German, as far as verb second is seen as a marker of assertions (cf. Holmberg 2015: 369). In summary, (1) and (2) qualify as canonically finite with respect to C-3, while (3) qualifies as canonically non-finite.

C-4 to C-6, i.e. morphological marking of politeness, evidentiality, and switch-reference, respectively, are not fully applicable to German, though for different reasons. As for politeness, this category does get marked on personal pronouns and personal pronouns might count as part of morphology; however, this is not what Nikolaeva has in mind here. Otherwise she would have specified the constituents or semantic roles concerned. So this criterion must be about honorifics in verbal morphology (also cf. the examples in Nikolaeva 2013: 106), which are known to be absent from German. As for evidentiality, understood as the grammatical marking of information source, there are some well-known candidates in German, see (11) above as well as (13) and (14) below (which are modifications of (1)).[6]

(13) Er soll   ge-arbeit-et   hab-en
      he should   PST.PTCP-work-PST.PTCP   have-INF
      'He is said to have worked.'

(14) Er will   ge-arbeit-et   hab-en
      he wants   PST.PTCP-work-PST.PTCP   have-INF
      'He alleges to have worked.'

Both, the quotative in (11) as well as the modals in (13) and (14) specify the source of information and they do so, arguably, by grammatical means (Palmer 2001: 9; but cf. also Diewald and Smirnova 2010, who do not list these strategies as evidential constructions of present-day German). However, this is far from a full-fledged evidential system like the one of, e.g., Central Pomo (Mithun 1999: 181). In any case, grammatically specifying the source of information is not possible with (3), see (15) through (17).

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5. One might consider imperatives as verbal forms that mark directive speech acts. In that case, (1) is more canonically finite than either (3) or (2), since the former but not the latter allow the verb to become an imperative (*arbeite*).

6. In the embedded clauses I used the perfect infinitive in order to create an unambiguous context for the intended readings.

(15) *Er behauptet, zu   arbeit-e/arbeit-en-e.
     he claims   IPART work-QUOT/work-INF-QUOT
     intended: 'He claims that according to the source (possibly the claim itself),
     he is working.'

(16) *Er behauptet, ge-arbeit-et   haben   zu   soll-en.
     he claims   PST.PTCP-work-PST.PTCP have-INF IPART should-INF
     intended: 'He claims that according to hearsay, he (has) worked.'

(17) *Er behauptet, ge-arbeit-et   haben   zu   woll-en.
     he claims   PST.PTCP-work-PST.PTCP have-INF IPART want-INF
     intended: 'He claims that according to himself, he (has) worked.'

Please note that the unavailability of the evidential markers is not due to the semantics of the embedding predicate *behaupten* 'claim', as witnessed by (18) through (20), which are modifications of (2). The last two require a rather special context (as would the preceding examples); still, they are available.

(18) Er behauptet, dass er arbeite.
     he claims   that he work-QUOT
     'He claims that he is working.'

(19) Er behauptet, dass er gearbeitet   hab-en   soll.
     he claims   that he PST.PTCP-work-PST.PTCP have-INF should
     'He claims that according to hearsay, he (has) worked.'

(20) Er behauptet, dass er gearbeitet   hab-en   will.
     he claims   that he PST.PTCP-work-PST.PTCP have-INF want
     'He claims that according to himself, he (has) worked.'

Thus, evidential marking is available in principle, but not for *zu*-infinitives. The unavailability might very well be traceable to morphosyntactic principles (Abraham 2001; but cf. also Reis 2001: 294–295). So in summary, concerning evidentiality, the examples behave as expected: (1) and (2) allow for a small amount of evidential marking, whereas (3) does not. As for switch-reference, this is roughly the phenomenon that an overt marker signals if the subject of a clause is still the same as in the preceding clause or a different one. (for more information cf. Stirling 2006). Apparently, this phenomenon does not occur at all in German, so the associated criterion (C-6) does not apply.

C-7, i.e. nominative subject, in turn, is straightforwardly applicable. (1) and (2) show a nominative subject, whereas (3), i.e. the *arbeit*-clause of this example, does not: the subject is silent. Additionally, AcIs are possible in German, see (21).

(21) Ich sehe *ihn*   *arbeit-en*.
     I   see he.ACC work-INF
     'I see him working.'

However, this is not one of the structures represented above and hence not under scrutiny in the present paper, especially as it is restricted to a small subset of verbs acting as matrix predicates.

Interestingly, changing the verb in (1) influences the degree of canonical finiteness. Consider (22) [= (1)] to (24), which are again transferable to (2).

(22) Er   arbeit-et.
      he.NOM work-3SG
      'He is working.'

(23) Ihn   frier-t.
      he.ACC be.cold-3SG
      'He is cold.'

(24) Mich frier-t.
      I.ACC be.cold-3SG
      'I am cold.'

In (23) the only and therefore the highest argument of the verb (cf. Nikolaeva's 2013: 107 definition of *subject*) is realized not in the nominative but in the accusative.[7] So (23) is less canonically finite than (22) [= (1)] (also cf. Nikolaeva 2007: 108). In addition, (24) shows that there is not even agreement with this subject, assuming that the *friert* in both examples is the same. That is, (22) [= (1)] also lags behind (23) in terms of criterion C-2, i.e. subject agreement – which might be a rather common situation (Nikolaeva 2007: 108). This possibly has something to with the fact that C-2 is, in actuality, not only a morphological but in some sense also a syntactic criterion: agreement pertains to the relationship between elements in a clause (Corbett 2012: 49). In any case, the finiteness contrast according to C-7 between (1) and (2) on the one hand and (3) on the other can be eliminated completely by changing the verb, see (25) through (27), which is the relevant version of (3).

(25) Ihn   friert.
      he.ACC be.cold-3SG
      'He is cold.'

(26) Er behauptet, dass ihn   friert.
      he claims   that he.ACC be.cold-3SG
      'He claims that he is cold.'

(27) Er behauptet, zu   frier-en.
      he claims   IPART be.cold-INF
      'He claims to be cold.'

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7. Non-nominative subjects in general are referred to as "quirky subjects" by Nikolaeva (2013: 108). This usage is adopted here although it might be quite broad.

Neither of the *arbeit*-clauses listed above displays a nominative subject, so neither of them is canonically finite, according to C-7. That is, the finiteness contrast between (1) and (2) on the one hand and (3) on the other only holds for non-quirky subjects. However, non-quirky subjects represent the majority of all subjects by far. So, at least as a tendency, C-7 gives the expected results.

In summary, the morphological criteria yield a rather clear picture: the traditional expectation that (1) and (2) should count as more (canonically) finite than (3) is largely confirmed. The only serious exceptions so far are clauses with verbs requiring quirky subjects (see above) and anteriority marking in *zu*-clauses (see (10)).

Next are the *syntactic criteria*, which are repeated here for convenience.

> *Syntactic criteria* (repeated from p. 285)
> C-8 independent clause > dependent clause
> C-9 subject licensing > no subject
> C-10 morphosyntactic expression of information structure > no morphosyntactic expression of information structure   (Nikolaeva 2013: 108–109)

C-8, i.e. being an independent clause, is the first criterion to yield an unexpected result directly: Although (1) as an independent clause is judged canonically finite in accordance with traditional accounts and although (3) as a dependent clause is judged canonically non-finite also in accordance with traditional accounts, crucially, (2) as a dependent clause is judged canonically *non*-finite by criterion C-8. On a larger, typological scale, of course, this result is not surprising – ever since Givón (1990) the independent status of a clause has been at centre stage in assessing its finiteness. Thus in fact, clauses like (2),[8] which count as canonically finite according to morphological criteria but at the same time are embedded, constitute an exotic phenomenon – maybe especially in an OV-language like German (Koptjevskaja-Tamm 1993: 1247).

The next criterion is C-9, i.e. subject licensing. Applying this criterion yields the traditionally expected results, as has already been demonstrated with respect to criterion C-7, i.e. a nominative subject. Please note that "non-nominative subject" must include silent, possibly case-less subjects (cf. Nikolaeva 2013: 107) so that the two criteria overlap.

Also criterion C-10, i.e. morphosyntactic expression of information structure, classifies (1) and (2) as (mostly) canonically finite in contrast to (3). This results from the attempt to combine each of the three clauses with what are here assumed to be the morphosyntactic means of encoding information structure in German, i.e. clefting, left dislocation, focus particles, and modal particles ((28) to (39)). It

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8. Recall that numbers usually refer to the *arbeit*-part, not to the entire example at hand.

is further assumed for present purposes that *nur* can be used as a proxy for modal particles generally and likewise *ja* for modal particles (but see Abraham 2017 for a different view).

First, consider (1), i.e. *Er arbeitet*, with clefting, left dislocation, focus particles, and modal particles successively. Recall that each of these operations is taken to instantiate canonical finiteness.

(28)   Er ist es, der   arbeitet.
       he is it   who works
       'It is him who is working.'

(29)   Er, der   arbeitet.
       he this.one works
       'As to him, he is working.'

(30)   Er arbeitet nur.
       he works   FPART
       'He is just working.'

(31)   Er arbeitet ja.
       he works   MPART
       'He is working, according to our shared knowledge.'

Second, consider (2), i.e. [*Er behauptet,*] *dass er arbeitet*, with clefting, left dislocation, focus particles, and modal particles successively.

(32)   Er behauptet, dass er es ist/sei, der   arbeitet.
       he claims   that he it is   who works
       'He claims that it is him who is working.'

(33)   *Er behauptet, er dass der   arbeitet.
       he claims   he that this.one works
       intended: 'He claims: as to him(self), he is working.'

(34)   Er behauptet, dass er nur   arbeitet.
       he claims   that he FPART works
       'He claims that he is just working.'

(35)   Er behauptet, dass er ja   arbeitet.
       he claims   that he MPART works
       'He claims that he is working, which in fact he does according to the shared knowledge of the original speaker (= himself) and the original addressee.'

Thus, with the exception of (33), (1) and (2) prove to be canonically finite. Now consider (3), i.e. [*Er behauptet,*] *zu arbeiten*, with clefting, left dislocation, focus particles, and modal particles successively.

(36) *Er behauptet, es zu   sein,   der arbeitet.
he claims   it IPART be.INF who works
intended: 'He claims to be the one who is working.'

(37) *Er behauptet, er zu   der   arbeit-en.
he claims   he IPART this.one work-INF
intended: 'He claims: as to himself, he is working.'

(38) Er behauptet, nur   zu   arbeit-en.
he claims   FPART IPART work-INF
'He claims to be just working.'

(39) *Er behauptet, ja   zu   arbeit-en.
he claims   MPART IPART work-INF
intended: 'He claims to be working, which in fact he does according to the shared knowledge of the original speaker (= himself) and the original addressee.'

Thus, with the exception of (38), (3) proves canonically non-finite. So criterion C-10, i.e. morphosyntactic expression of information structure, for the most part confirms the conventional picture of a sharp distinction between finiteness and non-finiteness in German.

In summary, the results of the syntactic criteria largely correspond to the traditional expectations that (1) and (2) are to be classified as (canonically) finite in regular contrast to (3), with two notable exceptions, however: For one thing, (2) is less canonically finite than (1), since it is embedded and not amenable to left dislocation; for another thing, (3) is *not* canonically *non*-finite, since it allows focus particles.

Next (and last) are the *semantic criteria*, repeated here for convenience.

Semantic criteria (repeated from p. 285)
C-11 assertion > no assertion
C-12 independent temporal anchoring > no independent temporal anchoring
C-13 information structuring > no information structuring

(Nikolaeva 2013: 113–116)

C-11, i.e. assertion, refers to assertive speech acts (Nikolaeva 2013: 113). Certainly, (1) counts as an assertive speech act: It makes a claim about reality. Equally clear is that (3), i.e. *zu arbeiten*, does not assert anything, cf. the fact that (40) is not contradictory.

(40) Er weigert sich zu   arbeit-en.
he refuses REFL IPART work-INF
'He refuses to work.'

Thus our two initial examples (1) and (3) behave as expected. Once again, the oddball is (2), i.e. *dass er arbeitet*. Being finite from a traditional point of view, it is not judged canonically finite according to C-11 since it is not an assertive speech act on its own. This can be deduced from the fact that, like (40), also (41) may be uttered without contradiction.

(41) *Dass er arbeitet*, ist nicht wahr.
      that he works   is   not   true
      'It is not true that he is working.'

C-12, i.e. independent temporal anchoring, concerns the way a clause's content is located in time: deictically or via another clause (Nikolaeva 2013: 114). This criterion yields a similar picture as the last one. (1) is clearly and constantly anchored to the time of utterance (real or fictional) and hence counts as canonically finite. Inversely, the temporal interpretation of (3) always depends on the matrix predicate, see (42).

(42) Er behauptete, zu   arbeit-en.
      he claimed   IPART   work-INF
      'He claimed to be working.'

To be sure, the *zu*-clause may be temporally marked as shown in (10), repeated here as (43).

(43) Er behauptet, (gestern)   ge-arbeit-et   zu   hab-en.
      he claims   (yesterday) PST.PTCP-work-PST.PTCP   IPART   have-INF
      'He claims to have been working.' or: 'He claims to have worked.'

However, as stated in connection with (10), this is a relative tense whose interpretation depends on the matrix predicate. Thus, in (43) the working is before the claiming – no matter where the claiming is located in time relative to the moment of utterance, see (44).

(44) Er behauptete, ge-arbeit-et   zu   haben.
      he claimed   PST.PTCP-work-PST.PTCP   IPART   have-INF
      'He claimed that he had worked.'

Furthermore, the simple infinitive in (3) might be interpreted as simultaneous or posterior with respect to the matrix predicate, but never in isolation from it. Interestingly, (2) behaves similarly, see (45) through (48).

(45) Er behauptet, dass er arbeitet.
      he claims   that he works
      'He claims to be working.'

(46) Er behauptet, dass er ge-arbeit-et   hat.[9]
     he claims   that he PST.PTCP-work-PST.PTCP has
     'He claims that he was working.' or: 'He claims that he (has) worked.'

(47) Er behauptete, dass er arbeitet.
     he claimed   that he works (!)
     'He claimed that he was working.'[10]

(48) Er behauptete, dass er ge-arbeit-et   hat.
     he claimed   that he PST.PTCP-work-PST.PTCP has
     'He claimed that he had worked.' or: 'He claimed that he had been working.'

This is the pattern we saw for (2), i.e. the infinitive with *zu*. So again, *dass*-clauses seem to lean towards the non-finite end of the hierarchy. However, this observation has to be put into perspective: for the most part, there are no obvious sequence-of-tense effects in German, cf. (47), which does not translate literally into English. Still, the very fact that (48) allows for a past perfect reading shows that (2) above does not represent a wholesale temporally independent structure. Thus, as an interim summary one might conclude that *dass*-clauses are phenomena from what Corbett would presumably call the "penumbra" of finiteness – they are canonically finite according to the morphological criteria, yet not according to all syntactic and semantic criteria.

    The last semantic criterion (and the last one overall) is C-13, i.e. information structuring. This criterion refers to the proposition as a conceptual state of affairs: Does it contain both the presupposed as well as the asserted part (Nikolaeva 2013: 116)? In Nikolaeva's own words:

> Another semantic constraint on a canonically finite clause is that it must be pragmatically structured, i.e. contain the asserted and the presupposed part.
> C-13 information structuring > no information structuring
>   This canon is broader than C-10, which only deals with the morphosyntactic realization of information structure, because it concerns a level of sentence representation where propositions, as conceptual states of affairs, are structured in accordance with the interlocutors' assessment of the informational value of sentence elements and the contextual factors.   (Nikolaeva 2013: 116)

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9. In contrast to the perfect form, the preterite form does not seem to fit here. Since it is not the aim of this paper to discuss issues concerning perfect vs. preterite in German, I ignore this observation for the time being.

10. Cf. the following text for an answer to the question why a present tense form is translated as a past tense form here.

Frankly speaking, I find this criterion hard to apply, since on such a high level of abstraction all clauses seem to contain both parts – except for thetics, which Nikolaeva indeed cites as examples of reduced canonicity according to C-13 (Nikolaeva 2013: 116–117). There seems to be no way to apply this criterion meaningfully to the clauses under scrutiny here, which do not feature thetics.

Summing up the applicable semantic criteria, (1) is canonically finite, (3) is canonically non-finite and (2) tends to pattern with (3). The latter is unexpected from a traditional, but not from a typological perspective.

Regarding the evaluation as a whole, it turns out that finiteness in German, as far as represented by the clauses above, is for a large part neatly organized in canonically finite vs. canonically non-finite structures. The only exceptions are *dass*-clauses (see (2)), anteriority marking as well as focus particles in *zu*-clauses (see (10), (38)), and clauses with verbs requiring quirky subjects (see (25) through (27)). Thus, these phenomena constitute the whole "penumbra" of (non-)finiteness in German, where according to Corbett's tentative prediction language change is expected to start (if it does start at all, to be sure). So for example, German could – in the long run – get rid of tense and agreement in *dass*-clauses or ban anteriority marking/focus particles from *zu*-clauses. In this way, both structures would develop towards the non-finite end of the canonical ideal. What is not expected, however, is that for instance *zu*-clauses become even more hybrid in staying embedded but beginning to allow for yet another temporal marking, hence extending the paradigm. However, this seems to be precisely what is happening, as will be shown in the following section.

2.2 Variation in German (non-)finiteness

This section presents the unexpected development of *zu*-infinitives towards even more hybrid forms somewhere between non-finiteness and finiteness. In more detail, the non-expected form would be a *zu*-infinitive marked for posteriority, which is illustrated in (49), a modification of (3).

(49) Er behauptet, arbeit-en zu werd-en.
he claims work-INF IPART FUT-INF
if structure is accepted: 'He claims that he will work.'

This is very much in parallel with the *zu*-infinitive marked for anteriority, which was shown in (10) and is repeated here for convenience.

(50) Er behauptet, (gestern) ge-arbeit-et zu hab-en.
he claims (yesterday) PST.PTCP-work-PST.PTCP IPART have-INF
'He claims to have worked.'

Both markings are based on a periphrasis; for posteriority this is [*werden* [infinitive]], for anteriority this is [*haben/sein* [past participle]]. Deriving the non-finite markings from the underlying periphrases is very easy: for the whole periphrasis to be infinitival, the highest verb (*werden* and *haben/sein*, respectively) just has to be put into the infinitive. That is, the structure represented in (49) is formally available just as well as the one in (50).

However, there also appear to be some differences between [*werden*$_{\text{INF}}$ [infinitive]] on the one hand and [*haben/sein*$_{\text{INF}}$ [past participle]] on the other. Presumably, the two most important differences, apart from the obvious ones, concern subtle issues of meaning. First, while the latter structure has been classified as truly temporal in the present paper (see p. 288f), the former builds on finite [*werden*$_{\text{FIN}}$ [infinitive]], which has been famously argued to convey a purely or partly modal meaning (cf., e.g., Vater 1975 and subsequent literature). Second, in contrast to [*haben/sein*$_{\text{INF}}$ [past participle]], the structure [*werden*$_{\text{INF}}$ [infinitive]] with *zu* is redundant if one assumes that any particle infinitive is future-tensed *per se* (Martin 2001: 147). That is to say: Some researchers hold that the plain *zu*-infinitive without any posterior marking is not only *able to* refer to some posterior time in relation to, e.g., the matrix predicate (which nobody would deny); they also hold that the plain *zu*-infinitive without any posterior marking invariably shows this kind of temporal reference, hence intrinsically disallowing simultaneous readings (Martin 2001). Put differently, again: The *zu*-infinitive is assumed by some to convey posteriority anyway. The two possible differences between [*werden*$_{\text{INF}}$ [infinitive]] and [*haben/sein*$_{\text{INF}}$ [past participle]] are treated at length in Reiner (2018). Here, I will confine myself to reporting the results very briefly. Whereas finite [*werden*$_{\text{FIN}}$ [infinitive]] might count as modal to some extent, non-finite [*werden*$_{\text{INF}}$ [infinitive]] can only be analyzed as temporal, i.e. posterior. Without any marker of posteriority, however, *zu*-infinitives are amenable to the interpretation that the situations encoded in the *zu*-infinitive and the matrix predicate, respectively, overlap – as witnessed by the default interpretation of (3), in which the claiming and the (claimed) working intersect. Thus, contra Martin (2001), *zu*-infinitives are *not* inherently future-tensed, i.e.: markers of posteriority in this context are *not* doomed to be redundant from the outset.[11] To be sure, they *can* be redundant (and they even usually are, cf. Reiner 2018).

As an interim summary, it may be said that the structure represented in (49) is truly temporal and not wholly redundant. Hence, if it exists, we are indeed dealing with an extension of the temporal paradigm in non-finite contexts – the very development, which is expected not to happen under the circumstances described in Subsection 2.1.

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11. Another question is what the communicative function of the *zu*-infinitive marked for posteriority might be. This question is treated in Reiner (2018).

Now the true empirical questions are: Is this structure used and, probably more importantly, is it accepted by native speakers? In order to answer these questions I conducted two studies, which are documented in detail in Reiner (2018). Below I will briefly summarize the main methodological considerations as well as the most important results.

Assessment of use is most conveniently done by investigating corpora, so the first study to be presented is a corpus analysis. From a pilot study based on *WebCorp Live* and the *DeReKo* subcorpus *W-öffentlich* it was known that the pattern INF *zu werden* does appear at least 99 times, 11 of which within the *DeReKo* (also cf. Reiner 2015).[12] Certainly, absolute numbers do not tell us much, especially if the total corpus size is unknown as with *WebCorp Live*. However, in case the numbers as such are unrealistic, they are unrealistically small rather than unrealistically large, since in all likelihood recall has been seriously reduced: Neither of the search environments allows for word form variables, i.e. instead of the abstract pattern INF *zu werden* only individual instances like *sagen* 'say' *zu werden*, *tun* 'do' *zu werden* etc. could be searched (for the concrete selection of lexemes cf. Reiner 2015).

Given these drawbacks of the pilot study, the corpus study proper focused on the *DeReKo* subcorpus *TAGGED-C-öffentlich*, which is tagged for parts of speech and word forms, e.g., finite vs. non-finite verbs (in a traditional morphological sense). Tags, however, come at the price of reduced size: Whereas (the current version of) *W-öffentlich* encompasses 7,647,570,408 word tokens, *TAGGED-C-öffentlich* must make do with 1,022,895,699. Are these enough tokens for finding a pattern like INF *zu werden*, which is suspected of occurring in low frequencies only? An indication that it is indeed is provided by double perfects. These are hardly expected in a written corpus; still the pattern PST.PTCP *haben*.PST.PTCP *haben*.FIN does yield 97 hits. So I will proceed on the assumption that the size of *TAGGED-C* suffices for present purposes.

Having said this, only five instances of INF *zu werden* could be retrieved (one of which manually, cf. Reiner 2017, 2018). If only those with a verbal matrix predicate are considered, merely three examples remain. Since there are so few, I will take the luxury of presenting them all, see (51) through (53).

(51) Simon Krummenacher glaubt deshalb,   dank   des
      PN   thinks because.of.this thanks.to the
      Gardedienstes   in seiner persönlichen Entwicklung einen grossen
      military.service in his   personal   development a   big

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12. False hits, obvious mistakes, metalinguistic instances, and duplicates were not counted.

Schritt   nach vorne *tun*   *zu*   *werd-en.*
step   forward   do.ɪɴꜰ ɪᴘᴀʀᴛ will-ɪɴꜰ
'Simon Krummenacher therefore thinks that thanks to the military service he
will take a big step forward in his personal development.'

(St. Galler Tagblatt, 9 October 2001)

(52) Sie erklärte, die Fraktion künftig   nicht mehr   *führ-en*
     she declared   the fraction in.the.future not   anymore lead-ɪɴꜰ
     zu   *werd-en […]*
     ɪᴘᴀʀᴛ will-ɪɴꜰ
     'She declared that she would not lead the fraction anymore in the future.'

(Nürnberger Nachrichten, 31 March 2006)

(53) Dem widersprachen die Spieler und betonten, auch ohne   Geld
     this objected   the players and stressed   also without money
     für ihr   Land *spiel-en zu*   *werd-en.*
     for their country play-ɪɴꜰ ɪᴘᴀʀᴛ will-ɪɴꜰ
     'The players objected to this and stressed that they would play for their country
     even without remuneration.'   (Nürnberger Zeitung, 16 June 2006)

Other *zu*-infinitives referring to a posterior time are realized in the simple form
shown in (3), as expected. Thus, [werden$_{INF}$ [infinitive]] in terms of [ɪɴꜰ *zu werden*]
is virtually absent from the corpus. Additionally, the examples retrieved seem to be
restricted to indirect speech. I do not have a ready-made full explanation for this
restriction; however, it is very reminiscent of future infinitives in Latin (Pinkster
2015: 531). At least, the pattern is more frequent than comparable slips of the
pen are, i.e. instances of [ɪɴꜰ *zu* werden$_{FIN}$] like *sagen zu wird or *sagen zu werde*,
which do not occur at all in the corpus. Still, three or five instances of a particular
3-gram in a corpus of more than one billion words appear not to be enough for
postulating the existence of a structure. At most, the numbers might be projected
to *W-öffentlich*, which increases them to about 22 and 37, respectively. However,
projecting from very small numbers seems dangerous, to say the least. Thus, the
hypothesis that there is variation as to an optional explicit marking of posteriority
in *zu*-infinitives hardly receives any support from the corpus findings. That is,
Corbett's tentative prediction is *not* seriously under threat so far.

Things are a bit different with respect to acceptability judgements. In an online
questionnaire, participants were asked to comment freely on various sentences,
among them (52) and (53).[13] As outliers in the corpus these were expected to be

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13. Documented in the supplement of Reiner (2018) as "Fragebogen". Example (51) could not
be taken into account for methodological reasons that are beyond the scope of this paper (cf.
Reiner 2018).

considered dubious or unacceptable by most participants. However, the results contained two surprises: First, in spite of the open task, participants judged categorically; second, a notable minority accepted the structure: 40% for (52) and 46% for (53). The details are in Table 3.

Table 3. Acceptability of explicit posteriority marking in *zu*-infinitives

	(52): *führen zu werden*	(53): *spielen zu werden*
accepted	22	19
not accepted	25	28
not clear	0	0
Total	47	47*

* In total, 70 reactions to the questionnaire were evaluated (the others being, e.g., not complete). Of these, only 47 fulfilled two conditions:

(i) The participants were *not* likely to be linguists according to the information they gave about their education/occupation.

(ii) They listed a variety of German that can be considered close to the standard language as their L1 or one of their L1s (they were requested to be as exact as possible in specifying their L1(s), the example being "Kölsch und Niederländisch" – 'German spoken in Cologne and Dutch').

The numbers show considerable inter-speaker variation w.r.t. the acceptability of INF *zu werden*, although the participants formed a quite homogenous group in terms of language external factors: From a total of 47 participants 34 were between 20 and 40 years old, 30 were female, 30 living in Munich (20 born there), and 45 at least being allowed to attend university (*Abitur*) if not actually studying or working in academia. In addition to inter-speaker variation, there seems to be some inter-item variation; however, the difference is not significant ($\chi^2 = 0.17303$, $p > 0.05$, $df = 1$) and also the effect size is very small ($\phi = 0.064$).

Comparing these results with the corpus findings, it can be stated that although INF *zu werden* was virtually absent from the corpus, it was accepted by a number of speakers that is not negligible. So strictly speaking, there is not only inter-speaker variation but also an asymmetry between production and perception. How to integrate these divergent pieces of evidence? Usually, graded acceptability can be captured very well by constrained-based approaches like HPSG: The more constraints are violated, the worse judgments become (Müller 2018: 500). However, strictly speaking, the kind of variation modelled by these approaches is intra-speaker variation (the constraints are the same for everyone), whereas the acceptance rates above show hardly any intra-speaker variation but rather int*er*-speaker variation (assuming one grammar per speaker).[14] One way to interpret inter-speaker variation is

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14. In this connection Myers (2009: 411) states: "within a speech community, *variability across speakers in a judgment experiment can be considered as essentially random* (at least until proven

hypothesising that we are witnessing change in progress. For example, in some mental grammars the temporal paradigm of *zu*-infinitives might have been tacitly extended, with the new form finding its way into production only occasionally. This hypothesis needs to be checked by means of a diachronic study based on, e.g., the DWDS and, especially, the DTA. Furthermore, if within such a study the new infinitive proves to be the product of a recent change indeed, this change has to be categorized, e.g., as "syntactization" in the sense of Seiler (2015) or as the formation of an "exploratory expression" in the sense of Harris & Campbell (1995: 73; for a brief critical discussion cf. Schallert, to appear: 18–20). For purposes of the present paper, however, the question I want to address is this: What if the hypothesis of the new infinitive being due to recent change were true, how would Canonical Typology deal with such a case? So I will proceed on the (motivated) assumption that the temporal paradigm of *zu*-infinitives is extending towards a tripartite system of anteriority, simultaneity, and posteriority. It is another question where the extension came from and yet another question if it will survive.

To sum up, according to my interpretation of the data presented above, there is variation and (beginning) change towards explicit marking of posteriority in German *zu*-infinitives. In particular, a notable number of speakers readily accept the structure. Since this development makes German (non-)finiteness less canonical, it is precisely the kind of change that is predicted *not* to occur according to Corbett's tentative prediction.[15]

3.   Theoretical framework

This last section goes back to Section 1 in order to rescue Corbett's tentative prediction evaluated in Section 2.

In Section 1 it was noted with some surprise that creating canonical ideals seemed to work differently for basic categories (i.e. features and their values) than it did for more complex categories (e.g., [non-]finiteness). This difference can be made more precise: Whereas the former are idealized strictly according to conceptual criteria, the latter are idealized according to the ways certain phenomena tend

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otherwise), due not to grammar itself but to noise in the judgment-making process" (emphasis mine, TR). However, this statement presupposes that we already know we are dealing with a speech community (rather than a community defined by extra-linguistic features). So this is not a starting point for variationist linguistics.

15.   Unless the possibility is taken into account that language change, though directed, does not always take the shortest track. However, if this possibility is taken into account, hypotheses about language change become virtually non-falsifiable.

to cluster in the real world. In my view, there is nothing wrong in principle with the second strategy; however, it departs seriously from the original spirit of Canonical Typology. My suspicion is that this spirit can also be preserved when defining more complex categories, at least with respect to (non-)finiteness. But for that purpose it seems necessary to re-separate (non-)finiteness into its two parts, i.e. its formal and semantic components, respectively. I will only have to say something about the semantic side and will leave the formal side for future research (but cf. Eide 2016). All we need, then, is a conceptual semantic core of what is intuitively called *finiteness*. Luckily, there is a ready-made suggestion in the literature: according to Klein (1994), finiteness is closely connected to assertions or, more precisely, to claims.[16] This is reminiscent of Nikolaeva's first semantic criterion C-11, i.e. assertion; however, in what follows, the conceptual realm of assertion/claim is not going to be just one out of thirteen criteria (or three semantic ones) but rather it will replace the whole bundle of criteria and constitute the central notion from which everything else is derived. In fact, Nikolaeva's second semantic criterion C-12, i.e. independent temporal anchoring, will be dispensed with implicitly in the course of the following discussion. Likewise, Nikolaeva's third semantic criterion C-13, i.e. information structuring, has already been shown to matter only if thetics are taken into account, which is beyond the scope of the present paper. In more detail, I suggest that the semantic sides of (non-)finiteness, tense, aspect, and mood can be defined as displayed in Figure 1. Please note that the basic idea here is just to expand on Klein (1994), which is, certainly, no new idea (e.g. Iatridou 2000: 247–249; Maienborn 2003: 158), yet one that apparently has not been completely exploited so far.

The main hypothesis of this model is that the distinction between what are usually called finite vs. non-finite clauses semantically rests on a very simple difference: In either case there is a topic, though only in the former case is the pertinent comment actually claimed (right-hand side of Figure 1).[17] Claims, by their very nature, are concrete in being confined to certain worlds or times; even highly general claims are not outside of worlds or times but rather refer to *all* worlds and times. So there is a set of worlds or times that a given claim is restricted to. The set of worlds is called *Topic World* (TW) here, the set of times *Topic Time* (TT), drawing on Klein (1994) and also Klein (2008: 289). Restricting a claim to TW is what I would like to term *mood*. Restricting a claim to TT is what I would like to term *tense* or *aspect*, depending on how TT is identified: *tense*, if identified relative to the Time of Utterance (TU), *aspect* if identified relative to the Time of Situation

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16. I ignore here further developments like Klein (1998), which might introduce ambiguities (Nikolaeva 2013: 111).

17. Please note that the whole model is about topic-comment structures only, so there is no danger of including the semantics of nominal structures by accident.
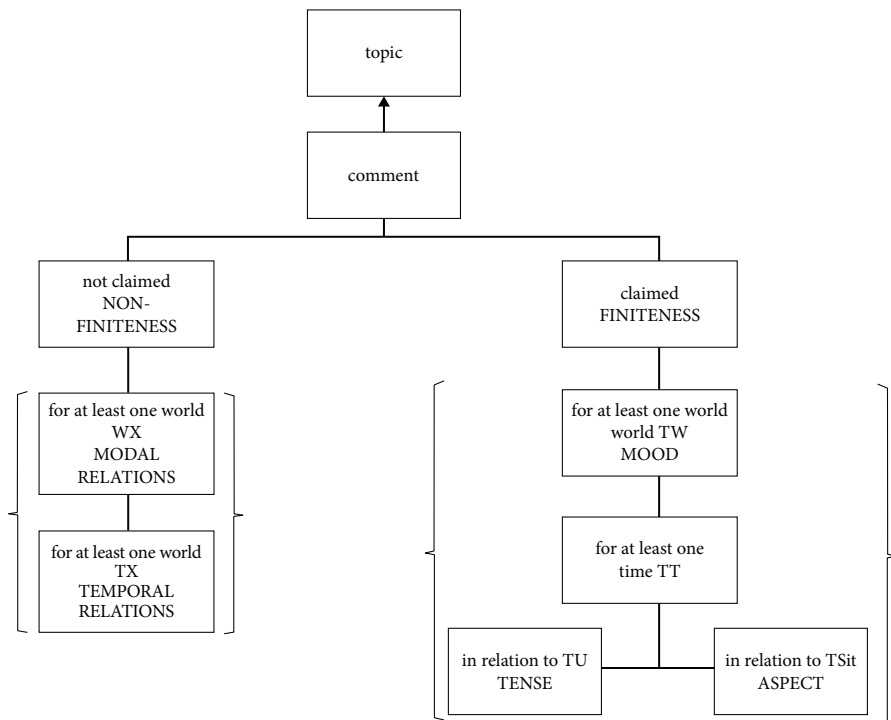
Figure 1. TMA semantics (NB: further branching is possible)

(TSit).[18] The distinction between tense and aspect, too, goes back to Klein (1994). Please note that we are dealing with semantic distinctions only, although Klein takes morphological finiteness (probably in the sense of Nikolaeva's criteria C-1 and C-2) as the carrier of TT in languages where this kind of finiteness is available (Klein 1994: 144). Speaking of interfaces, the upper part of Figure 1, i.e. the boxes containing "topic" and "comment", serves as an interface to pragmatics, in particular as a channel for filling in variables like TW, TT, TU and TSit.

Up to now, the essentials of the right-hand side in Figure 1 have been explained. For present purposes, however, the vital part is the one on the left-hand side. A

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18. It is not my intention in this paper to give a comprehensive account of how different values of tense, mood, and possibly aspect are expressed in German. In particular, I do not touch on the question as to whether the expression of tense and mood is in any way compositional (cf. Fabricius-Hansen 1999). But note that irrealis mood and reported speech (party expressible by the same means in German) both involve a shift of world, both starting from the current speaker's beliefs: In the former case the shift is to any set of worlds that is not compatible with the current speaker's beliefs, in the latter case it is to the quoted speaker's beliefs (compatible or not with the ones of the current speaker).

comment that is not claimed does not have to be restricted to worlds or times – but crucially, it *may* be restricted to a set of worlds or times (WX or TX). The two cases might be referred to as *modal relations* and *temporal relations*, respectively. The choice of X is free (e.g., the real world of the 19th century), it can even coincide with TW, TT, TU or TSit. Still this is not mood, tense or aspect, since the claim is lacking. For example, the *arbeit*-clauses of (10) and (49), repeated here as (54) and (55), involve a comment that is restricted to a certain time (presumably, before/after the time when the matrix predicate holds), but is not claimed in itself (of course it is in the context).

(54) Er behauptet, (gestern)   ge-arbeit-et   zu   hab-en.
     he claims   (yesterday) PST.PTCP-work-PST.PTCP IPART have-INF
     'He claims to have worked.'

(55) Er behauptet, arbeit-en zu   werd-en.
     he claims   work-INF IPART will-INF
     if structure is accepted: 'He claims that he will work.'

Please note that from the semantic perspective adopted here, also *dass*-clauses like (2) are judged to be non-finite. In any case, (54) and (55) are captured by Figure 1 just as naturally as temporally unspecified infinitives are (in principle, even modal infinitives are conceivable, which might pose a challenge for syntactic modelling). That is, if Figure 1 is taken as the canonical ideal of semantic (non-)finiteness, then infinitives of anteriority or posteriority are no less canonical than temporally un-specified ones. Moreover, if creating canonical ideals means to "take definitions to their logical end point" (Corbett 2012: 154), then the canonical ideal of finiteness as well as non-finiteness makes use of all possibilities built into the model. That is, the canonical finite clause involves a comment that is claimed for a certain world, a certain time relative to TU, and additionally for a certain time relative to TSit; the canonical non-finite clause involves a comment that is not claimed and yet restricted to a certain world and a certain time.

One might object that the canonical ideal of a non-finite clause should not involve any restrictions to worlds or times, since it is an essential property of the left-hand side of Figure 1 that these restrictions are not necessary. At first sight, both the objection as well as the original argument seem to have a point, especially as it is hard to compare the canonical ideals of semantic finiteness and non-finiteness as suggested here with "classical" canonical ideals of basic (and non-binary) categories like NUMBER, GENDER or PERSON. However, PERSON might give a valuable clue to the best solution. In pronouns, PERSON is realized necessarily and in verbs only op-tionally (via agreement). Still, canonical PERSON is realized not only where it must be but across *all* parts of speech (cf. Corbett 2012: 162). I take this as a hint that the original argument is on the right track. If it is, then finally Corbett's tentative

prediction is rescued. Recall that Corbett cautiously expected languages to change from the less canonical to the more canonical rather than the other way round. According to Figure 1 and the reasoning just presented, canonical non-finiteness implies a maximum of distinctions. Thus, extending a non-finite temporal paradigm makes non-finiteness in that language more canonical than it used to be. Accordingly, (non-)finiteness as a whole becomes more canonical in the language, although the contrast has not been sharpened. In this view, the data presented in Section 2 do not threaten Corbett's tentative prediction but rather confirm it.

4.   Conclusion

Sometimes, it is beneficial to go back to the roots in order to solve a current problem. I hope that the re-assessment of canonical non-finiteness suggested here is a case in point. However, it cannot be emphasized enough that only half of the work is done (at most), since I focused on the semantic side.

Acknowledgements

Abbreviations

3	third person
ACC	accusative
COUNTERFACT	counterfactuality
DeReKo	*Deutsches Referenzkorpus* ('German reference corpus')
DTA	*Deutsches Textarchiv* ('German text archive')
DWDS	*Digitales Wörterbuch der deutschen Sprache* ('Digital dictionary of the German language')
FPART	focus particle
FUT	future
INF	infinitive
IPART	infinitive particle
MPART	modal particle
NOM	nominative
PN	proper name

POS	part of speech
PST	past
PTCP	participle
QUOT	quotative
REFL	reflexive
SG	singular
TSit	*Time of Situation* according to Klein (1994)
TT	*Topic Time* (Klein 1994)
TU	*Time of Utterance* (Klein 1994)
TX	some specific time

Corpora

Used

WebCorp Live <http://www.webcorp.org.uk/live/> (last accessed for this study on 4 November 2014).

DeReKo = Deutsches Referenzkorpus ('German reference corpus') <http://www.ids-mannheim.de/cosmas2> (last accessed for this study on 4 November 2014).

Mentioned

DWDS = Digitales Wörterbuch der deutschen Sprache ('Digital dictionary of the German language') <https://www.dwds.de/>

DTA = Deutsches Textarchiv ('German text archive') <https://www.dwds.de/d/k-referenz#dta>

References

Abraham, Werner. 2001. Modals. Towards explaining the 'epistemic non-finiteness gap'. In *Modalität und Modalverben im Deutschen* [Linguistische Berichte Sonderheft 9], Reimar Müller & Marga Reis (eds), 7–36. Hamburg: Buske.

Abraham, Werner. 2004. The grammaticalization of the infinitival preposition. Toward a theory of 'grammaticalizing reanalysis'. *Journal of Comparative Germanic Linguistics* 7(2): 111–170. https://doi.org/10.1023/B:JCOM.0000007343.96479.7f

Abraham, Werner. 2017. Modalpartikel und Mirativeffekte. In *Grammatische Funktionen aus Sicht der japanischen und deutschen Germanistik* [Linguistische Berichte Sonderheft 24], Shin Tanaka, Elisabeth Leiss, Werner Abraham & Yasuhiro Fujinawa (eds), 75–107. Hamburg: Buske.

Bond, Oliver. 2013. A base for canonical negation. In Brown et al. (eds), 20–47.

Brown, Dunstan, Chumakina, Marina, Corbett, Greville G., Popova, Gergana & Spencer, Andrew. 2012. Defining 'periphrasis'. *Key notions. Morphology* 22(2): 233–275. https://doi.org/10.1007/s11525-012-9201-5

Brown, Dunstan, Chumakina, Marina & Corbett, Greville G. (eds). 2013. *Canonical Morphology and Syntax*. Oxford: OUP.

Bybee, Joan L. 2003. Tense. Definition. *International Encyclopedia of Linguistics*, Vol. 4, 2nd edn, William J. Frawley (ed.), 223–224. Oxford: OUP.

Corbett, Greville G. 2011. The penumbra of morphosyntactic feature systems. *Morphology* 21(2): 445–480. https://doi.org/10.1007/s11525-010-9171-4

Corbett, Greville G. 2012. *Features*. Cambridge: CUP. https://doi.org/10.1017/CBO9781139206983

Diewald, Gabriele & Smirnova, Elena. 2010. *Evidentiality in German. Linguistic Realization and Regularities in Grammaticalization* [Trends in Linguistics: Studies and Monographs 228]. Berlin: De Gruyter Mouton. https://doi.org/10.1515/9783110241037

Dowty, David R. 1991. *Word Meaning and Montague Grammar. The Semantics of Verbs and Times in Generative Semantics and in Montague's PTQ* [Studies in Linguistics and Philosophy 7]. Dordrecht: Kluwer. (Reprint from 1979).

Eide, Kristin M. 2016. Introduction. In *Finiteness Matters. On Finiteness-related Phenomena in Natural Languages* [Linguistics Today 231], Kristin M. Eide (ed.), 1–44. Amsterdam: John Benjamins. https://doi.org/10.1075/la.231.01eid

Fabricius-Hansen, Cathrine. 1999. "Moody time". Indikativ und Konjunktiv im deutschen Tempussystem. *Zeitschrift für Literaturwissenschaft und Linguistik* 29(1): 119–146. https://doi.org/10.1007/BF03379172

Fortescue, Michael. 1984. *West Greenlandic*. London: Croom Helm.

Gaeta, Livio. 2013. Multiple sources for the German scandal construction. *Studies in Language* 37(3): 566–598. https://doi.org/10.1075/sl.37.3.05gae

Givón, Talmy. 1990. *Syntax. A Functional-typological Introduction* 2 Vols. Amsterdam: John Benjamins.

Harris, Alice C. & Campbell, Lyle. 1995. *Historical Syntax in Cross-linguistic Perspective* [Cambridge Studies in Linguistics 74]. Cambridge: CUP. https://doi.org/10.1017/CBO9780511620553

Helbig, Gerhard & Buscha, Joachim. 2001. *Deutsche Grammatik. Ein Handbuch für den Ausländerunterricht*. Berlin: Langenscheidt.

Holmberg, Anders. 2015. Verb second. In *Syntax. Theory and Analysis* [Handbücher zur Sprach- und Kommunikationswissenschaft 42.2], Tibor Kiss & Artemis Alexiadou (eds), 342–383. Berlin: De Gruyter Mouton.

Iatridou, Sabine. 2000. The grammatical ingredients of counterfactuality. *Linguistic Inquiry* 31(2): 231–270. https://doi.org/10.1162/002438900554352

Klein, Wolfgang. 1994. *Time in Language*. London: Routledge.

Klein, Wolfgang. 1998. Assertion and finiteness. In *Issues in the Theory of Language Acquisition. Essays in Honor of Jürgen Weissenborn*, Norbert Dittmar & Zvi Penner (eds), 225–245. Bern: Peter Lang.

Klein, Wolfgang. 2008. The topic situation. In *Empirische Forschung und Theoriebildung. Beiträge aus Soziolinguistik, Gesprochene-Sprache- und Zweitspracherwerbsforschung; Festschrift für Norbert Dittmar zum 65. Geburtstag,* Bernt Ahrenholz, Ursula Bredel, Wolfgang Klein, Martina Rost-Roth & Romuald Skiba (eds), 287–305. Frankfurt: Peter Lang.

Koptjevskaja-Tamm, Maria. 1993. Finiteness. In *The Encyclopedia of Language and Linguistics*, Vol. 3, Ronald E. Asher (ed.), 1245–1248. Oxford: Pergamon.

Maienborn, Claudia. 2003. *Die logische Form von Kopula-Sätzen* [Studia Grammatica 56]. Berlin: Akademie. https://doi.org/10.1524/9783050082271

Martin, Roger. 2001. Null Case and the Distribution of PRO. *Linguistic Inquiry* 32(1): 141–166. https://doi.org/10.1162/002438901554612

Mithun, Marianne. 1999. *The Languages of Native North America*. Cambridge: CUP.

Müller, Stefan. 2018. Grammatical Theory. *From Transformational Grammar to Constraint-based Approaches*, 2nd edn [Textbooks in Language Sciences 1]. Berlin: Language Science Press. <http://langsci-press.org/catalog/book/195>

Myers, James. 2009. Syntactic judgment experiments. *Language and Linguistics Compass* 3(1): 406–423. https://doi.org/10.1111/j.1749-818X.2008.00113.x

Nikolaeva, Irina. 2007. Introduction. In *Finiteness. Theoretical and Empirical Foundations*, Irina Nikolaeva (ed.), 1–19. Oxford: OUP.

Nikolaeva, Irina. 2013. Unpacking finiteness. In Brown et al. (eds), 20–47.

Palmer, Frank R. 2001. *Mood and Modality*, 2nd edn. Cambridge: CUP. https://doi.org/10.1017/CBO9781139167178

Pinkster, Harm. 2015. *The Oxford Latin Syntax*, Vol. 1: *The Simple Clause*. Oxford: OUP. https://doi.org/10.1093/acprof:oso/9780199283613.001.0001

Reiner, Tabea. 2015. An emerging future infinitive in present day German? *De Gruyter Open Linguistics* 1: 503–518.

Reiner, Tabea. 2017. [??]...*sehen werden kann*. Ergebnisse einer Korpusstudie. *Sprachwissenschaft* 42(2): 191–202.

Reiner, Tabea. 2018. Existiert ein Infinitiv Posterior im Gegenwartsdeutschen? Habilitation thesis, LMU Munich. Supplement: <http://tabea-e-reiner.de/index.php?id=177>, passwords to files on request

Reis, Marga. 2001. Bilden Modalverben im Deutschen eine syntaktische Klasse? In *Modalität und Modalverben im Deutschen* [Linguistische Berichte. Sonderheft 9], Reimar Müller & Marga Reis (eds), 287–318. Hamburg: Buske.

Rothstein, Björn. 2013. Belege mit doppeltem Futur im Deutschen? Ergebnisse einer Internetrecherche. *Sprachwissenschaft* 38(1): 101–119.

Schallert, Oliver. To appear. A note on misplaced or wrongly attached zu 'to' in German. *Journal of Germanic Linguistics.*

Seiler, Guido. 2015. Syntactization, analogy and the distinction between proximate and evolutionary causations. In *Variation in Language. System- and Usage-based Approaches* [Linguae & Litterae 50], Aria Adli, Marco García García & Göz Kaufmann (eds), 239–264. Berlin: De Gruyter. https://doi.org/10.1515/9783110346855-010

Stirling, Lesley. 2006. *Switch-reference. Encyclopedia of Language and Linguistics*, Vol. 12, 2nd edn, Keith Brown (ed.), 316–323. Amsterdam: Elsevier. https://doi.org/10.1016/B0-08-044854-2/02020-4

Thieroff, Rolf. 1992. *Das finite Verb im Deutschen. Tempus – Modus – Distanz* [Studien zur deutschen Grammatik 40]. Tübingen: Narr.

Vater, Heinz. 1975. Werden als Modalverb. In *Aspekte der Modalität* [Studien zur deutschen Grammatik 1], Joseph P. Calbert & Heinz Vater (eds), 71–148. Tübingen: Narr.

Zeller, Jochen. 1994. *Die Syntax des Tempus. Zur strukturellen Repräsentation temporaler Ausdrücke*. Opladen: Westdeutscher Verlag. https://doi.org/10.1007/978-3-322-94200-5

Zifonun, Gisela, Hoffmann, Ludger & Strecker, Bruno. 1997. *Grammatik der deutschen Sprache* [Schriften des Instituts für Deutsche Sprache 7]. Berlin: De Gruyter.

Strong or weak?

Or: How information structure governs morphosyntactic variation

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This paper discusses morphological variation that is pragmatically determined. We focus on the distribution of personal pronouns and definite articles which both systematically show at least two different morphological forms – full and reduced – and we claim that their syntactic distribution depends on pragmatic factors. We show that the distribution of the various forms of both personal pronouns and definite articles obeys similar, yet not identical restrictions. Thereby we concentrate on four phenomena: deixis, relative clauses, contrastive focus, and contrastive topic. Whereas in the first two contexts the full forms must occur obligatorily, pronouns and articles show a more fine-grained sensitivity for the latter cases. We conclude from this that pronouns and definite articles have different complex syntactic structures.

1.   Introduction

Ever since the first descriptions of German dialects, it was observed that personal pronouns and definite articles systematically show at least two different morphological forms, i.e. full and reduced forms (cf. for pronouns Schiepek 1899–1908: 399, 407, and for articles Schiepek 1899–1908: 418f.). This is illustrated in (1) and (2): the a.-examples have a full form and the b.-examples a reduced one.[1]

(1)   a.   I gang   do   ned hi.
            I go.Sʙᴊᴠ.1ᴘʟ there not to

_____

[1].   The dialectal examples used in this paper come from two main sources. On the one hand, they are constructed on the basis of the native competences of the authors (Dirani for Hessian and Weiß for Bavarian). On the other hand, they are taken from literature as well as from an empirical survey via a questionnaire (cf. Dirani in prep.). In the latter case, the exact source is mentioned on the respective example.

<blockquote>

b. Do   gang'=e   ned hi.
    there go.Sᴮᴶᵛ.1ᴘʟ=I not to
    'I would not go there'

(2) a. Der Moan   do   gäiht   net do-hie.
        the man. sɢ.ɴᴏᴍ there go.ᴘʀs.3sɢ not there-to

b. De Moan   gäiht   net do-hie.
    the man.sɢ.ɴᴏᴍ go.ᴘʀs.3sɢ not there-to
    'This/the man doesn't go there'

</blockquote>

More recent syntactic research has been investigating the structure and distribution of these pronominal and article forms extensively.[2] However, to our knowledge, no study so far has compared their distribution. That is, the question of whether the occurrence of full and reduced forms is governed by the same principles in articles and pronouns has not been addressed previously. This is exactly what we do in this paper. More specifically, our investigation is guided by two hypotheses:

> *Hypothesis I:* The different morphological forms of articles and pronouns exhibit similar, though not identical syntactic distributions.
> *Hypothesis II:* The syntactic distribution is governed by comparable information-structural restrictions.

In this paper, we argue that the morphosyntactic variation observable with articles and pronouns is pragmatically governed: it is the information-structural status of the DP or the pronoun (like (contrastive) topic or focus) that determines which form of the article or pronoun is needed. Additionally, the observable differences between articles and pronouns have their origin in their different structural design (as we demonstrate in Section 5).

Since the work of Abney (1987) it has been widely assumed that there are different functional projections within the DP. Nevertheless, the question about the number and properties of these projections has not been solved yet. Hence, there is a lot of work on the parallelism between the sentence and the nominal domain with respect to a CP/DP analogy. Regarding the DP-hypothesis, the function of determiners and personal pronouns plays a crucial role and therefore, the left periphery of the nominal domain gains attention within the theoretical framework of generative grammar.

In order to contribute to the insights of the DP-syntax it is worth looking at dialectal data, since many German dialects show at least two different forms for the definite articles as well as for the personal pronouns, which differ with respect to their morphosyntactic properties and the semantic-pragmatic context which they appear in.

This paper is organized as follows: Section 2 describes and discusses the form and distribution of the two definite articles in South Hessian; Section 3 introduces

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forms and distribution of personal pronouns[3] in German dialects (with a strong focus on Bavarian); Section 4 compares the syntactic behavior of articles and pronouns in selected contexts and Section 5 provides a structural explanation of the observed differences; Section 6 contains a conclusion.

2.   The two definite articles in South Hessian: Form and distribution

2.1   The current research status in a nutshell

Many German dialects show a distinction between a full (Det_{Full}) and a reduced/clitic (Det_{Red}) form of the definite article, which differ with respect to their morphosyntactic properties and the semantic-pragmatic contexts they occur in. Descriptions exist for Bavarian (Weiß 1998), Austro-Bavarian (Brugger & Prinzhorn 1996; Wiltschko 2013), Ripuarian (Himmelmann 1997), Hessian (Schmitt 2006), Frisian (Ebert 1971a, b) and Swiss German (Studler 2011, 2014; Meier 2012). Whereas the literature shows a uniform picture concerning the distribution of the two definite article forms (cf. Table 1), there is still no consensus regarding the syntactic analysis of these forms (e.g. Studler 2011; Brugger & Prinzhorn 1996; Wiltschko 2013). Det_{Full} is used in deictic as well as anaphoric contexts, while Det_{Red} can only refer to intrinsically unique referents. Whereas the first case corresponds to pragmatic definiteness, the latter one belongs to semantic definiteness (Löbner 1985). This differentiation follows from the different conditions of reference fixing. On the one hand, there are expressions that need additional textual information in order to identify the referent, on the other hand, there are nouns that refer inherently to a unique referent. Here, it is either the semantics of the noun itself or the common knowledge that ensures that there is only one possible object to refer to (cf. Studler 2011 *recourse to text/world vs. recourse to knowledge*). Hence, in the latter case the uniqueness condition can be fulfilled in different ways. The various functions of the unique use can be characterized as follows: absolute unique (proper names, superlatives, idioms), situative unique, associative-anaphoric (bridging), and generic (Studler 2011).[4]

However, the presence of a restrictive relative clause (RRC) requires Det_{Full} on the head noun (e.g. Brugger & Prinzhorn 1996; Meier 2012; Studler 2011; Wiltschko 2013; Weiß 1998). This is not surprising, since RRCs count as cataphoric information, which helps identifying the referent. Therefore, they constitute a subfunction of anaphoric contexts (Studler 2011: 44f.). However, in what follows, we treat relative clauses separately, since relative clauses and adjectives share the function of nominal

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3.   Throughout this paper we use the term pronoun synonymously with personal pronoun.

4.   In the literature, there are different terms in order to describe the various functions, even though the contexts are the same (cf. Hawkins 1978).

Table 1. Distribution of Det_{Red} and Det_{Full} in German dialects

	Det_{Red}	Det_{Full}
Deictic	✗	✓
Anaphoric	✗	✓
Restrictive RC *(RRC)*	✗	✓
Unique expressions *(inclusive subfunctions)*	✓	✗

modifier, it is worth comparing both lexical categories with respect to article choice. In addition, there is hardly any research on the article choice in correlation with adjectival modifiers.[5] Table 1 summarizes the results of the current research on the topic, e.g. Studler (2011), Wiltschko (2013), Weiß (1998).

Summarizing, it can be concluded that the literature treats the discourse context dependency vs. independency as the crucial factor for the difference in the article distribution.

2.2   The situation in South Hessian – an empirical research

South Hessian shows two paradigms of definite article forms shown in Table 2 and 3.

Table 2. Paradigm of the reduced definite article in South Hessian

SG	M	F	N	PL (all)
NOM	de	di	es, s	di
ACC	de	di	es, s	di
DAT	em, m	de	em, m	de

Table 3. Paradigm of the full definite article in South Hessian

SG	M	F	N	PL (all)
NOM	der	di	des	di
ACC	den	di	des	di
DAT	dem	dere	dem	dene

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5.   Only Studler (2011) and Ebert (1971a) give a first idea of the distribution of the articles in correlation with adjectives.

Whereas with the feminine gender the forms differ only in the dative singular and plural, the other genders show a clear differentiation between the two articles. In addition, there are cases (i.e. in the entire neuter as well as in the dative masculine) that exhibit two different non-full forms, that is a reduced form and a clitical one. The latter ones occur especially together with prepositions or adjacent to conjunctions and verbs in second position.[6] One can also observe that some of the reduced forms have maintained the *d*-onset and furthermore do not show the inflectional part at all (e.g. in the feminine and NOM/ACC masculine). Additionally, the reduced forms usually surface with a schwa.[7]

In order to provide evidence for the distribution of Det_{Full} and Det_{Red} in South Hessian, empirical data have been collected via a corpus study and a questionnaire. For the corpus study, twelve prose texts written in South Hessian by four different authors between 1930 and 1980 were analyzed concerning the above-mentioned criteria for the distribution of the two definite article forms, i.e. pragmatic vs. semantic definiteness (cf. Table 1).[8] In addition, nominal expressions modified by relative clauses and adjectives were also considered. For both of these the distinction between a restrictive and a non-restrictive modification was made.[9] With the findings of the corpus study additional criteria became relevant to look at in order to get a more fine-grained picture concerning the different functions of the two definite determiners. Therefore, questionnaires have been sent to ten informants of the South Hessian speech area which additionally included the following conditions for the distribution of Det_{Full} and Det_{Red}: contrastive focus and contrastive topic.[10]

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6.   The clitical forms show up whenever there is an appropriate host. Therefore, they rather count as phonological than as syntactical clitics. For further information on this differentiation with respect to personal pronouns see Weiß (2015, 2016).

7.   This observation is especially interesting with respect to the often-suggested segmentation approach (e.g. Roehrs 2009), since the actual paradigm of Det_{Red} does not comply with the expected one according to the decomposition analysis.

8.   We are well aware that dialect literature may not be an ideal data source for linguistic investigations. Since the used texts were written by amateurs, the language is presumably much nearer to the spoken dialect than texts coming from professional writers. In addition, the fact that they show the same distribution as the data found in the questionnaires is evidence for their reliability. Furthermore, it is not entirely uncommon to use dialectal literature for linguistic purposes (cf. Freywald 2017).

9.   For the definition of restrictivity we follow Fabricius-Hansen (2009).

10.   Especially contexts like contrastive focus and topic have been considered either marginally or not at all for the analysis of the definite article, since they lead to unexpected results.

Regarding the survey-method, we followed the SyHD-project.[11] Putting the results of the corpus study and the questionnaires together, the following distribution of Det_{Full} and Det_{Red} for South Hessian emerges:

What remains with respect to the standard view in the literature is the complementary distribution of Det_{Red} and Det_{Full}. But the results (cf. Table 4) show clearly that the various functions have to be considered more carefully than it has been done so far. This holds especially for the anaphoric contexts that show two significant divisions. On the one hand, one has to differentiate between contexts that show a simple identity anaphora and contexts that include a part-whole relation between the antecedent and the resumptive DP. On the other hand, the part-whole relation itself has to be analyzed in more detail, since different part-whole relations require different article forms. Before demonstrating the new results, we start with the similarities between the findings in the literature and the empirical data from South Hessian. For deictic contexts (3) as well as on the head noun of RRCs (4) the full article form occurs obligatorily in South Hessian.

Table 4. Distribution of Det_{Red} and Det_{Full} in South Hessian*

	Det_{Red}	Det_{Full}
Deictic	✗	✓
Anaphoric 1 *(identity anaphora, hypernym/ sum)*	✗	✓
Restrictive RC *(RRC)*	✗	✓
Unique expressions *(inclusive subfunctions)*	✓	✗
Anaphoric 2 *(hyponym/ subsection)*	✓	✗
Restrictive adjective *(RAdj)*	✓	✗
Contrastive focus	✓	✗
Contrastive topic	✓	✗

* Table 4 summarizes the results of the empirical survey of South Hessian based on the corpus and questionnaire. The table considers only the variant which occurs most frequently both in the corpus and the questionnaire. Of course, there is some variation among the informants, but in all contexts, there is a very clear preference for one option only. A more detailed description of the results (including a statistical evaluation) will be provided in Dirani (in prep.).

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11. SyHD (Syntax hessischer Dialekte / Syntax of Hessian dialects) was funded by the German Research Foundation and is a collaborative project of the Universities of Frankfurt, Marburg and Wien that addresses the documentation and analysis of syntactic phenomena in Hessian dialects (cf. <http://www.syhd.info/startseite/>). The questionnaire contains 28 questions using different question types as described in Fleischer, Kasper & Lenz (2012). For a more detailed description of the questionnaire see Dirani (in prep.).

(3) Es beschde is, mer hocke uns unner den
the best be.PRS.3SG, we sit.PRS.1PL us under the(Det_Full)
Baam do!
tree.ACC.SG there
'It would be the best, we sit down under this tree there.' (Stoll 1989: 71)

(4) Un sie hot sich doch e bisje scheniert wäije
and she have.PRS.3SG herself still a bit embarrass.PTCP because.of
dem Doischenaonne, wou se bei-m Krobbe-suche
the(Det_Full) mess.DAT.SG that she during-the pot-search.DAT.SG
fabriziert hot.
fabricate.PTCP have.PRS.3SG
'And still she was a bit embarrassed because of the mess that she had made
when searching the pot'. (Pöschl 1985: 12)

In contrast, in South Hessian, unique expressions are introduced by Det_Red only.
This counts for all the above-mentioned contexts that can be analyzed as subfunc-
tions of the unique use. The following examples show the absolute unique (5),
situative unique (6), generic (7) and associative-anaphoric (8) use.

(5) De Deiwel soll=se holle!
the(Det_Red) devil.NOM.SG shall.PRS.3SG=her get.INF
'The devil shall come for her!' (Stoll 1989: 66)

(6) Wie de Klaa bei-kumme woar,
when the(Det_Red) small.NOM.SG here-come.PTCP be.PRT.3SG,
horr=er noch laurer oufange ze plärrn.
have.PRS.3SG=he even louder begin.PTCP to scream.INF
'When the small one had come here, he began to scream even louder.'
(Stoll 1989: 69)

(7) ...daß=e ubedingt es Raache ausbrowieren
... that=I absolutely the(Det_Red) smoking.ACC.SG try.INF
mißde.
must.PRT.1SG
'... that I absolutely had to try smoking.' (Pöschl 1987: 44)

(8) Moi neije Noachbern sinn wohl goanz nett.
my new neighbor.NOM.PL be.PRS.3PL probably quite nice.
De Moann schafft bei de Polizei!
The(Det_Red) man.NOM.SG work.PRS.3SG at the police.DAT.SG
'My new neighbors are probably quite nice. The man works at the police!'
(Question 21)

The article choice on the noun in correlation with adjectives has been analyzed only marginally until now.[12] The empirical data from South Hessian show a clear picture concerning this issue. On the one hand, Det_{Red} is used independently from the function of the respective adjective, that is, in contrast to RRCs that require Det_{Full} on the head noun, RAdjs occur consistently with Det_{Red} (9)–(10).

(9) Groad in de letzte Zeit   hot   mer uff aomol däs
     just in the last   time.DAT.SG have.PRS.3SG one at once the
     "Aolde"   wirrer entdeckt.   Aolde Ouweplatte...   So
     old.ACC.SG again discover.PTCP Old hotplate.NOM.PL ... So
     is   es aa mit de   geistische Dinger.
     be.PRS.3SG it even with the(Det_{Red}) spiritual thing.DAT.PL
     'Just recently one has suddenly rediscovered the "old". Old hotplates ... It is
     even like that with the spiritual things.'   (Sauerwein 1985: 8)

(10) Bei dem Palmsunndaogsspaziergaong lerne   die Kinne
     at the Palm-Sunday-walk.DAT.SG   learn.PRS.3PL the children.NOM.PL
     noch es   rischdische Mooscht   ze finne, fer-n
     still the(Det_{Red}) right   moss.ACC.SG to find.INF for-the
     Nääscht-bau.
     nest-building.ACC.SG
     'At the Palm-Sunday walk the children still learn to find the right moss for the
     nest-building.'   (Pöschl 1987: 34)

On the other hand, the South Hessian data even provide evidence for the fact that it is only the respective function that the definite noun phrase as a whole fulfills that is responsible for the choice between Det_{Full} and Det_{Red}, and adjectives do not have any influence on the article choice. The following definite NPs (11)–(12) support this assumption, since both show up with a non-restrictive adjective in different contexts, but alternate between the reduced and the full article form. In (11) there is a unique expression, namely a proper name (i.e. *Feldschitz*), which is modified by an adjective, but not restricted in its denotation.[13] Therefore, the proper name is introduced by Det_{Red} as expected.

(11) Nadierlich worn   die Buwe   noud oig mudisch, wall
     naturally be.PRT.3PL the boy.NOM.PL not very brave,   because
     de   bäise Feldschitz erscht emol auße Gfäscht
     the(Det_{Red}) bad Feldschitz first once outside combat

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12. As mentioned before, there is only little research on this topic by Studler (2011), Ebert (1971a) and Wiltschko (2013). Wiltschko considers adjectival modification in her theory, but to our knowledge, she does not give any empirical evidence for the Austro-Bavarian dialect.

13. In this case one speaks of conceptual non-restrictivity. For the different types of prenominal non-restrictivity see Fabricius-Hansen (2009).

gsetzt   wor.
set.PTCP   be.PRT.3SG
'Of course, the boys were not really brave because the bad Feldschitz as a start
was put out of action.'   (Pöschl 1987: 42)

Example (12) is a typical case of an anaphoric context where the resumptive DP
(*dem grouße Storm*) is introduced by Det$_{Full}$. The adjective is again non-restrictive,
since it does not play any role in reference fixing. The anaphoric resolution only
helps in identifying the referent.

(12) Awer en Windstouß   horr=er=en   aus   de Hand
      but   a gust.NOM.SG have.PRS.3SG=her=it from the hand.DAT.SG
      geresse   un wie e Wage-road   iss=er   zwische de
      pull.PTCP and like a wagon-wheel.NOM.SG be.PRS.3SG=he between the
      Beem   de Roah   enunner-geweljert.   Ich
      tree.DAT.PL the Roah.ACC.SG downwards-falling.PTCP I
      wolld=em   noach springe, awer vun dem   grouße
      want.PRT.1SG=him after jump.INF but from the(Det$_{Full}$) big
      Storm   is   mer die Luft   aus-gange.
      storm.DAT.SG be.PRS.3SG me the air.ACC.SG out-go.PTCP
      'But a gust pulled it out of her hand and like a cartwheel it was falling down
      between the trees along the lynchet. I wanted to jump after it, but I ran out of
      air because of the big storm.'   (Stoll 1989: 72)

Consequently, one can conclude that adjectives and relative clauses behave dif-
ferently with respect to the choice of the definite article in South Hessian. Even
if they occur in the same function, namely as a restrictive modifier, both require
different article forms.[14]

   Finally, the empirical data from South Hessian sheds new light on the function
of the definite article in anaphoric contexts. Therefore, a closer look at the relation
between the antecedent and the resumptive definite DP is necessary. Whereas the
literature only considers the case of identity anaphora, the South Hessian data
show in addition that the respective part-whole relation in anaphoric contexts, if
present, plays a crucial role for the article choice. Example (13) shows an identity

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14. Studler (2011) observes the same distribution for Swiss German. However, there seems to
be inter-dialectal variation: some dialects require Det$_{Full}$ with adjectives, whereas others show a
somehow mixed behavior. An example of the first type is Luxembourgish where adjective attributs –
according to Schanen & Zimmer (2012: 105) – always co-occur with Det$_{Full}$ (thanks to A. Dammel
for pointing to the Luxembourgisch data). In Bavarian, though both article forms occur with ad-
jectives, there is good evidence for that Det$_{Red}$ is the default case and Det$_{Full}$ occurs only in certain
phonologically defined circumstances (see Weiß 1998: 73 for further details). Note, however, that
also in Bavarian, it is the pragmatic function of the whole DP that determines the article forms
(contrasting *vo dem groußn Schdurm* with *vom groußn Schdurm* 'of this/the great storm').

anaphora where the antecedent is picked up in the following sentence with an identical definite NP introduced by Det$_{Full}$.

(13) Die kennte   doch   sou en Robodde   hiestelle, der
     they can.SBJV.3PL however such a   robot.ACC.SG situate.INF, he
     wou   ner es Maul   uff-ze-mache   breischt,   waonn
     where just the mouth.ACC.SG open-to-make.INF   need.SBJV.3SG,   when
     me e Plastik-kärtche   noi-schiewe will...   Un   der
     one a plastic-card.ACC.SG   in-push.INF want.PRS.3SG... And the(Det$_{Full}$)
     Robodde,   der kennt   daonn uff dem   Kärtche   e bisje
     robot.NOM.SG, he   can.SBJV.3SG then on   the(Det$_{Full}$) card.DAT.SG a bit
     rimkaue,   un   do   breischt   der daonn ner noch die
     gnaw.INF, and there   need.SBJV.3SG he   then just still the
     Rezepte   hinne-raus ze schiewe.
     prescription.ACC.PL back-out to push.INF
     'They could put up such a robot, which just needs to open his mouth when
     one wants to push a plastic card inside.... And then the robot could gnaw a bit
     on the card, and then he just needs to push out the prescription on the back.'
                                                              (Pöschl 1985: 72–73)

Another anaphoric function where Det$_{Full}$ must occur is shown in (14) where the resumptive NP *Ouloß* forms the hypernym of the antecedent *Hochzeed*. Hence, in these contexts the antecedent always forms the hyponym of the following DP.

(14) De Rasiere   wolld   Hochzeed mache.   Fer den
     the barber.NOM.SG want.PRT.3SG   wedding make.INF for the(Det$_{Full}$)
     Ouloß   horr=e   sich   bei-m Schneire   en neije
     occasion.ACC.SG have.PRS.3SG=he himself at-the tailor.DAT.SG a new
     Ouzug   oumesse   losse.
     suit.ACC.SG   measure.INF let.INF
     'The barber wanted to marry. For the occasion, he let the tailor manufacture
     a new suit.'   (Pöschl 1985: 38)

Similar to (14) the example in (15) shows the just-mentioned semantic relation, too.

(15) Die Weschnitz   is   do   a   schun   erwähnt,
     the Weschnitz.NOM.SG   be.PRS.3SG   there also already mention.PTCP
     mit dem nome   'Wisgoz' un die Rodau   is
     with the name.DAT.SG   'Wisgoz' and the Rodau.NOM.SG   be.PRS.3SG
     do   'Rohaha' gschrewwe worn...   Keltische Siedler
     there 'Rohaha' write.PTCP become.PTCP   Celtic   settlers.NOM.PL

solle   denne   Flissjien   sällemols die Nomen

shall.PRS.3PL these(Det$_{Full}$) rivulet.DAT.PL back.then the name.ACC.PL

gäwwe   hou.

give.PTCP   have.INF

'The Weschnitz is there already mentioned too, with the name 'Wisgoz', and the Rodau has been written 'Rohaha'… Celtic settlers are said to have given the names to these rivers back then.' (Pöschl 1985: 59–60)

Whereas the first paragraph contains a split antecedent, namely *Weschnitz* and *Rodau* (two rivers in South Hesse), the hypernym *Flissjien*, that refers back to it, occurs in the following sentence and is obligatorily introduced by Det$_{Full}$. In (14) as well as in (15) the anaphoric contexts show that the resumptive NP always forms a hypernym of the antecedent and has to appear consistently with the full definite article. Interestingly, the opposite part-whole relation is present in the so called associative-anaphoric contexts (bridging), for which Det$_{Red}$ is already documented on the resumptive noun phrase for different German dialects. In fact, the South Hessian data show the same distribution: the resumptive NP is introduced by Det$_{Red}$ and forms the hyponym of the antecedent. To sum up, it can be concluded that depending on the part-whole relation that is present, either the full or the reduced definite article is required.

The examples in (14) and (15) represent the first case, where the resumptive is the hypernym or sum of the antecedent. In contrast, the reverse case is illustrated by the following Examples (16)–(17).

(16) Moi neije Noachbern   sinn   wohl   goanz nett.

my   new   neighbor.NOM.PL be.PRS.3PL probably quite nice.

De   Moann   schafft   bei de Polizei!

The(Det$_{Red}$) man.NOM.SG work.PRS.3SG at   the police.DAT.SG

'My new neighbors are probably quite nice. The man works at the police!'

(Question 21)

(17) Isch woar   letschde Samstag   erscht im Seegmüller

I   be.PRT.1SG last   saturday.DAT.SG just   at Segmüller.DAT.SG

und hoab   mir   en poar fesche Möbel   gekaaft.

and have.PRT.1SG myself a few   nice   furniture.ACC.SG buy.PTCP

Die sehe   rischdisch stoark aus. Es   Regoal

they look.PRS.3PL very   strong out. The(Det$_{Red}$) shelf.NOM.SG

hoat   bunde Dubbe   iwweroal.

have.PRS.3SG colorful point.ACC.PL everywhere.

'Just last Saturday I was at Segmüller and bought myself some nice furniture. It looks very good. The shelf has colorful points everywhere.'

Whereas (16) provides a typical example for the *hypernym-hyponym* relation, the context in (17) rather shows the case of *subsection*.[15] Be that as it may, the crucial point in both examples is that the respective resumptive noun phrase (*Regoal, Moann*) constitutes a subset of the antecedent and is introduced by Det$_{Red}$. The data therefore clearly show that for anaphoric contexts the part-whole relation between the antecedent and the resumptive definite NP must be considered, since it has an influence on the article choice.

In the questionnaire, additional contexts were included that entail a contrastive focus in form of a correction (18) as well as a contrastive topic in a parallel structure (19). The results show that in both cases the contrastive definite NPs need to be introduced by the reduced article form obligatorily.

(18) A: Woas? Du willschd   doi Oaldtaamer   vekaafe?
         what you want.PRS.2SG your old-timer.ACC.SG sell.INF?
      B: No, im Lääwe   net! Isch moan   doch es
         no in life.DAT.SG not I   mean.PRS.1SG PTC the(Det$_{Red}$)
      Kabrio!
      cabriolet.ACC.SG
      'A: What? You want to sell your old-timer?
      B: No, not in a lifetime! I mean the cabriolet!'   (Question 17)

(19) Letschd Woch   hoab   isch mer   en Meerschwoansche
      last   week.ACC.SG have.PRS.1SG I   myself a guinea pig.ACC.SG
      un en Kannikel   gekaaft. Es   Meerschwoansche is
      and a   rabbit.ACC.SG buy.PTCP the(Det$_{Red}$) guinea pig.NOM.SG is
      gonz scheij   fresch, soach   isch der, awwer dodefär
      entirely pretty cheeky, say.PRS.1SG I   you but   in.return
      is   es   Kannikel   bsonners   broav!
      be.PRS.3SG the(Det$_{Red}$) rabbit.NOM.SG particularly well-behaved
      'Last week I have bought a guinea pig and a rabbit. The guinea pig is really cheeky, I tell you, but in return the rabbit is particularly well-behaved.'
                                                              (Question 9)

Especially examples with contrastive topics cause a problem for the research approach in the literature, according to which the full article form occurs consistently in anaphoric contexts.[16]

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15. Meier (2012) already distinguishes between *sum vs. subsection* concerning the different article choice in Swiss German.

16. Wiltschko (2013) and Studler (2011) already draw attention to this problem, but they leave it open for further research.

Contrary to the standard assumption, the new empirical data lead to the conclusion that the discourse context-dependency vs. -independency cannot be the crucial factor for the difference in distribution of the two definite article forms in South Hessian.

2.3 Why focus also exists in the DP – evidence for a split-DP hypothesis

The empirical evidence concerning the distribution of the two definite determiners in South Hessian leads to the following generalizations: Only Det_{Full} evokes a set of alternative referents within the nominal domain, i.e. within the DP. Whenever Det_{Full} is used there is a number of potential referents within one alternative-set available, whereas this is not the case if Det_{Red} is used. Accordingly, in the latter case the referent is interpreted as unique. On the contrary, Det_{Full} shows that the referent is not yet identified and that the relevant information is in the surrounding context. Furthermore, it indicates that due to that information one entity is picked out of a set of alternatives. We explain this difference by assuming different complex syntactic structures of Det_{Red} and Det_{Full} (following Dirani in prep.). We assume that only Det_{Full} selects for an additional projection, namely a focus phrase, above NP. This FocP indicates the set of alternative referents within the DP.[17] For the definition of the term focus we follow the idea of the Alternative Semantics according to Rooth (1992) and Krifka (2008), where focus marks the presence of alternatives that are relevant for the interpretation of linguistic expressions. Therefore, we assume the following syntactic structures of the two definite articles which are based on different feature-sets.[18]

(20)　Det_{Red}: [DP [NP]]
　　　Det_{Full}: [DP [FocP [DemP [NP]]]]

The dialectal data from South Hessian supports the suggested hypothesis. Considering once more the functions Det_{Full} occurs in, it becomes obvious that there is always a set of alternative referents within the nominal domain available.

In deictic contexts, the uniqueness of the referent is established only by the deictic gesture that picks out one entity of a set of alternatives (see example 3 above). Since deictic contexts imply the presence of alternative referents within the DP,

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17. See the term of the variable C in Wiltschko (2013). C is only selected by Det_{Full} and represents, apart from other textual functions, alternative-sets too. But Wiltschko subsumes all these functions under the factor of discourse context dependency which according to her is responsible for the occurrence of the full article form.

18. Apart from [+def, +phi], Det_{Full} and the demonstrative show additional features. The exact feature composition and syntactic derivations that follow from this cannot be addressed in this paper. This will be part of the current dissertation project by Dirani.

Det$_{Full}$ is used. The head noun of a RRC is also introduced by Det$_{Full}$ consistently, since the additional textual information of the relative clause itself is necessary to identify the correct referent (see Example 4 above). The implied alternatives constitute a prototypical characteristic of RRCs (Bach 1974). Cabredo-Hofherr (2013) explains the function of Det$_{Full}$ with respect to RRCs in a very appropriate way.[19]

> In the Vorarlberg dialect the choice between a reduced and a full definite article on the head noun is clearly correlated with a contrastive reading of the RC…when the full article is used, the referent described by the DP+RC is contrasted with another potential referent of the DP.   (Cabredo-Hofherr 2013: 16)

One would expect that RAdjs imply the presence of potential referents and therefore require Det$_{Full}$, too. Instead, the empirical data show the opposite. If a noun is modified by a RAdj, it is always introduced by Det$_{Red}$. Studler (2011) observes the same distribution for Swiss German and claims that the difference between RRCs and RAdjs is based on the respective construction that is present, namely wide vs. narrow construction. Therefore, Det$_{Red}$ occurs in narrow constructions even when the modifier is a restrictive one. The term narrow construction means that the adjective is interpreted together with the noun as one unique expression that is therefore introduced by Det$_{Red}$ (Studler 2011: 110). Since in both cases the semantic function is identical, we assume that the difference between the two modifiers lies in the syntax, more specifically in the embedding of the respective constituent. Due to space limitations, we cannot discuss this problem in detail (see Dirani in prep. for a more detailed overview).

The different article use in anaphoric contexts is based on the respective part-whole relation that is present. In cases where the resumptive NP forms the hypernym of the antecedent, Det$_{Full}$ occurs on the noun (Example (4) repeated as (21)).

(21) De Rasiere   wolld   Hochzeed mache.   Fer den
      the barber.NOM.SG want.PRT.3SG wedding   make.INF for the(Det$_{Full}$)
      Ouloß   horr=e   sich   bei-m Schneire   en neije
      occasion.ACC.SG have.PRS.3SG=he himself at-the tailor.DAT.SG a   new
      Ouzug   oumesse   losse.
      suit.ACC.SG measure.INF let.INF
      'The barber wanted to marry. For the occasion, he let the tailor manufacture a new suit.'   (Pöschl 1985: 38)

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19. Contrary to Cabredo-Hofherr we do not distinguish between different types of RRCs, but follow instead the definition of Bach (1974) who claims that RRCs presuppose the existence of entities of which the description given in the relative clause is not true.

The hypernym *Ouloß* evokes a set of alternatives (cohyponyms), therefore it is introduced by Det$_{Full}$. Only due to the anaphoric relation to the antecedent the correct reference of Det$_{Full}$ can be established. In the opposite case, such as (17), repeated here as (22), Det$_{Red}$ occurs at the resumptive DP. As a hyponym, it does not provide any potential referents from the alternative set of *Regoal*, but counts as already identified, therefore the reduced article is obligatory.

(22) Isch woar   letschde Samstag   erscht im Seegmüller
      I   be.PRT.1SG last   saturday.DAT.SG just   at Segmüller.DAT.SG
      und hoab   mir en poar fesche Möbel   gekaaft.
      and have.PRT.1SG myself a few   nice   furniture.ACC.SG buy.PTCP
      Die sehe   rischdisch stoark aus. Es   Regoal
      they look.PRS.3PL very   strong out. The(Det$_{Red}$) shelf.NOM.SG
      hoat   bunde Dubbe   iwweroal.
      have.PRS.3SG colorful point.ACC.PL everywhere.
      'Just last Saturday I was at Segmüller and bought myself some nice furniture.
      It looks very good. The shelf has colorful points everywhere.'

The following contrast from Frisian provides additional evidence for the difference in article distribution with respect to the availability of alternatives.

(23) a. Me   a   tjiisken   haa   wi nimer föl   uun
          with the Germans.DAT.PL have.PRS.1PL we never much in
          san   hed.   A   tjiisken   san   för
          common have.PTCP the(Det$_{Red}$) Germans.NOM.PL be.PRS.3PL for
          üs imer   freemen   weesen.
          us always strangers.ACC.PL be.PTCP
          'We never had much in common with the Germans. The Germans have
          always been strangers to us.'
      b. Me   a   tjiisken   haa   wi nimer föl   uun
          with the German.DAT.PL have.PRS.1PL we never much in
          san   hed.   Dön   /*a   mensken
          common have.PTCP these(Det$_{Full}$) *The(Det$_{Red}$) people.NOM.PL
          san   för üs/ imer   freemen   weesen.
          be.PRS.3PL for us always strangers.ACC.PL be.PTCP
          'We never had much in common with the Germans. These people have
          always been strangers to us.'   (Ebert 1971a: 109–110)

Whereas in (23a) the reduced article form *a* is used in a generic context as expected, the full form *dön* occurs obligatorily in (23b) as soon as the generic expression is replaced by a hypernym to the preceding antecedent. In addition, Meier (2012) shows that the respective part-whole relation in anaphoric contexts determines the article choice also in Swiss German. Instead of the hyponym-hypernym relation Meier refers to sum vs. subsection.

(24) a. S Heidi hat de Peter am baanhoof troffe.
the Heidi have.PRS.3SG the Peter at.the station.DAT.SG meet.PTCP
Das päärli isch uf Acapulco.
the(Det$_{Full}$) couple.NOM.SG be.PRS.3SG on Acapulco.
'Heidi met Peter at the station. The couple travelled to Acapulco.'

    b. S Heidi und de Peter sind i tschtadt gfahre.
the Heidi and the Peter be.PRS.3PL in the-city.ACC.SG drive.PTCP
S maitli isch nervös gsi.
the(Det$_{Red}$) girl.NOM.SG be.PRS.3SG nervous be.PTCP
'Heidi and Peter drove into the city. The girl has been nervous.'

<div align="right">(Meier 2012: 2–4)</div>

In (24a) the two proper names form constitutive parts of the expression *päärli* that finally, as a sum, provides alternative referents and therefore must be introduced by Det$_{Full}$. In contrast, the resumptive noun phrase *maitli* in (24b) forms a subset of the preceding split-antecedent. As such it is interpreted as an inherent unique referent in the present anaphoric relation and therefore requires Det$_{Red}$. Hence, the additional dialectal data from Frisian as well as from Swiss German support our hypothesis that only Det$_{Full}$ evokes a set of alternative referents within the nominal domain.

Considering now the case of identity anaphora in (25), it is not obvious at first sight how the resumptive NP indicates alternative referents. In contrast to the above-mentioned examples there is no part-whole relation in (25) that implies the potential alternative set.

(25) Isch hoab mer geschdern wirrer e Buch aus-de
I have.PRS.1SG myself yesterday again a book.ACC.SG from-the
Bischerei ausgelieje. Des Buch woar sou
library.DAT.SG borrow.PTCP the(Det$_{Full}$) book.NOM.SG be.PRT.3SG so
spoannend, isch hoab=s schunn faschd doisch gelese.
thrilling I have.PRS.1SG=it already almost through read.PTCP
'Yesterday I have borrowed a book from the library again. The book was so thrilling that I almost finished it already.' (Question 28)

As a solution, we propose that anaphoric constructions like in (25) show an elided RRC that contains the relevant information about the antecedent mentioned in the previous sentence. Therefore, the correct reference of Det$_{Full}$ can be established as in (26).

(26) Isch hoab mer geschdern wirrer e Buch ausde Bischerei ausgelieje. Des Buch (woas isch mer geschdern ausde Bischerei ausgelieje hoab) woar sou spoannend, isch hoab's schunn faschd doisch gelese.

'Yesterday I have borrowed a book from the library again. The book (that I have borrowed from the library yesterday) was so thrilling that I almost finished it already.'   (Question 28)

The idea to introduce a RRC that serves as identification of the referent is already mentioned by Ebert (1971a) (27).

(27) Broor kaam   me   a   tsuch.   Di   tsuch
      Brar   come.PRT.3SG with the train.DAT.SG. The(Det_{Full}) train.NOM.SG
      wiar   am   a   klook njüügen uun Hamboreg.
      be.PRT.3SG at   the clock nine   in Hamburg.
      'Brar came with the train. The train was at nine o'clock in Hamburg.'
                                                                    (Ebert 1971a: 112)

Similar to Example (26), in Frisian too Det_{Full} occurs obligatorily on the resumptive NP *(tsuch)* in contexts with identity anaphora. Since RRCs imply the presence of alternative referents within the DP, the respective head noun is introduced by Det_{Full} obligatorily.

Of particular interest are contexts with contrastive focus or contrastive topic. On the one hand, they show that anaphoricity itself, and hence the factor of discourse context dependency, is not sufficient to account for the occurrence of the full article form. On the other hand, these phenomena provide evidence that information-structural factors can be encoded not only on the sentential level, but also within the nominal domain. Examples like the one in (28), mentioned before as (19), have not been considered much in research so far, which could be caused by the unexpected distribution of the article form.

(28) Letschd Woch   hoab   isch mer   en Meerschwoansche
      last   week.ACC.SG have.PRS.1SG I   myself a guinea pig.ACC.SG
      un en Kannikel   gekaaft. Es   Meerschwoansche is
      and a rabbit.ACC.SG buy.PTCP The(Det_{Red}) guinea pig.NOM.SG is
      gonz scheij   fresch, soach   isch der, awwer dodefär
      entirely pretty cheeky, say.PRS.1SG I   you but   in.return
      is   es   Kannikel   bsonners   broav!
      be.PRS.3SG the(Det_{Red}) rabbit.NOM.SG particularly well-behaved
      'Last week I have bought a guinea pig and a rabbit. The guinea pig is really cheeky, I tell you, but in return the rabbit is particularly well-behaved.'
                                                                    (Question 9)

In the present example, there are two contrastive pairs within a parallel structure. Two alternative entities, namely *Meerschwoansche* and *Kannikel*, that in addition to showing distinctiveness in their predication, are also contrasted with each other on the sentential level. This counts as a typical case of contrastive topic (for the

definition of contrastive topic see Repp 2010, Krifka 2008). Both definite NPs are introduced by Det_{Red} obligatorily. Since there is an anaphoric relation present, Det_{Full} is expected to occur on the nouns following the standard view in the literature (see Table 1). Wiltschko (2013) points out this problem by mentioning the following example from Austro-Bavarian.

(29) In the public library, they have a book about Canada. Recently, I was there and borrowed it. On my way home, I stopped to buy the New York Times. When I arrived at my place, I was eager to do some reading before dinner…

…Owa	i hob		net	gwusst,	ob		i	mit	da
…but	I have.PRS.1SG		not	know.PTCP	whether		I	with	the(Det_{Red})

Zeitung		oda	mi	m='buach		ofonga
newspaper.DAT.SG		or	with	the(Det_{Red})=book.DAT.SG		begin.INF

soi.
should.PRT.1SG

'But I did not know whether I should begin with the newspaper or the book.'

(Wiltschko 2013: 172)

Wiltschko notes that the occurrence of Det_{Red} is probably based on the number of antecedents that are present. Therefore, these kinds of contexts "will require a definition of anaphoric reference that is sensitive to the number of potential antecedents available" (Wiltschko 2013: 172).

But what seems to be crucial for the article choice is the level on which the factor contrast is encoded and therefore in which domain alternatives are available. In Example (28) as well as in (29) the contrast between the two entities is encoded on the sentential level, where they function as aboutness topics only. The crucial point is that there are no potential alternatives available for the respective denotations, i.e. at the DP-level. The referents *Meerschwoansche* and *Kannikel* in (28) count as already identified, thus the reduced article form is used. There is also evidence from Swiss German for the different kinds of contrasting alternatives in correlation with the choice of the article form. Studler (2011) also mentions, like Wiltschko (2013), an anaphoric relation, that unexpectedly shows up with Det_{Red} on the resumptive NP instead of Det_{Full}.

(30) | Uf | mim | Buurehoof | get=s | | es | Ross | | und | e |
|---|---|---|---|---|---|---|---|---|---|
| at | my | farm.DAT.SG | give.PRS.3SG=it | | a | horse.ACC.SG | | and | a |

Hund.		S		Ross		louft		schnäuer	as
dog.ACC.SG		the(Det_{Red})		horse.NOM.SG		run.PRS.3SG		faster	than

de		Hund.
the(Det_{Red})		dog.NOM.SG

'At my farm there are a horse and a dog. The horse runs faster than the dog.'

(Studler 2011: 55)

If the two referents *Ross* and *Hund* are compared with each other, the reduced article is used for both NPs. In contrast, Det_{Full} occurs if one referent object is directly compared to other referents of its kind (e.g. the horse in comparison to other horses in the stable) (Studler 2011: 55). The current example emphasizes again, that the level on which the alternative set is available, is crucial for the article choice. Hence, the full article form occurs obligatorily, if there are alternative referents within the nominal domain available.

In the following example, (18) repeated as (31), there is once again a contrast between two entities on the sentential level, namely between *Oaldtaamer* and *Kabrio*.

(31) A: Woas? Du willschd   doi Oaldtaamer   vekaafe?
          what you want.PRS.2SG your old-timer.ACC.SG sell.INF?
      B: No, im Lääwe   net! Isch moan   doch es
          no in life.DAT.SG not I   mean.PRS.1SG PRT the(Det_{Red})
          Kabrio!
          cabriolet.ACC.SG!
      'A: What? You want to sell your old-timer?
      B: No, not in a lifetime! I mean the cabriolet!'   (Question 17)

In contrast to the previous example, (31) shows a contrastive focus in form of a correction. However, also in this context there are no potential alternative referents for the denotation *Kabrio* available, hence the reduced article must occur. From this we conclude that contrastive topics as well as contrastive foci do not imply the presence of alternative referents within the nominal domain, that is why Det_{Red} is used consistently.

Even in Ebert (1971b), significant examples supporting the present observations can be found.

(32) Üüb'=t markels   wul's   mi an kü   an
      at=the fair.DAT.SG want.PRT.3PL=they me a cow.ACC.SG a
      hingst   üüb-drei. Di/A   hingst   haa
      horse.ACC.SG on-foist.INF the(Det_{Full}/Det_{Red}) horse.NOM.SG have.PRS.1SG
      ik natüürelk ei keeft.   Wi haa   jo al   trii
      I naturally not buy.PTCP   we have.PRS.1PL PRT already three
      stak.   Man det/at   kü   fing´=k   dan
      piece.ACC.PL but the(Det_{Full}/Det_{Red}) cow.ACC.SG got.PRT.1SG=I then
      dach me.
      still with
      'At the fair they tried to palm a cow and a horse off on me. Of course I did not buy the horse. We have already three ones. But I did however get the cow.'
                                                    (Ebert 1971b: 165)

In (32) both article forms are possible but yield different readings. If Det_{Red} is used, there is a contrast between *hingst* and *kü*. Whereas if Det_{Full} is used, a contrastive reading between the mentioned horse (*hingst*) and other horses arises (Ebert 1971b). Therefore, Det_{Full} implies that there are more horses – in reality or potentially – that are sold, even if they are not mentioned explicitly, while Det_{Red} does not allow the alternative reading. If there is a contrastive topic present, Det_{Red} functions as the definite article obligatorily. Only if potential referents within one alternative-set are implicated, i.e. within the DP, Det_{Full} introduces the noun phrase.

The analysis of the new data from South Hessian has shown that the function of the different article forms needs a more fine-grained differentiation than previously assumed. The empirical data make the claim that discourse context-dependency vs. -independency is not sufficient in order to explain the distribution of Det_{Full} and Det_{Red}. In addition, new generalizations could be formulated which permit a Split-DP hypothesis – only Det_{Full} evokes a set of alternative referents within DP and hence selects for a FocP above NP.

Finally, the analysis of the two definite article forms in South Hessian provides evidence for the influence of the information structure on morphosyntactic variations. Information-structural factors (especially focus) can be encoded on the sentential level as well as within the nominal domain, which is shown in the patterns of variation observable in the syntax of determiners.

3. Pronouns: Form and distribution

3.1 In general

Regarding (personal) pronouns, it is known from the earliest dialect descriptions (e.g. Schiepek 1899–1908: 399, 407) that German dialects show a similar distinction, because they possess two morphologically different paradigms of pronouns, namely a series with full forms and another one with reduced forms:

> [Das Pronomen] besitzt neben den vollen Formen, die sowohl vor als hinter dem Verb stehen können und je nach […] Betonung länger oder kürzer gesprochen werden, fast durchwegs […] abgeschliffene, unter dem Einfluss der Tonlosigkeit stark reduzierte Formen, welche in der Enklisis hinter dem Verb und den einleitenden Konjunktionen auftreten (Schiepek 1899–1908: 399).

> "The pronoun possesses besides the full forms which can be placed before as well as behind the verb and which are pronounced longer or shorter according to stress, almost completely abraded forms, greatly reduced under the influence of tonelessness, which appear in the enclisis behind the verb and the introductory conjunctions" (our translation).

The traditional understanding of this difference is nearly exclusively based on phonological assumptions: since pronouns never receive accent when placed after the verb or the complementizer (i.e. in the Wackernagel position, see below), they developed reduced forms. However, if the lack of accent would have been the only reason for this development, we would not expect that some pronouns evolved clitic forms, whereas others just developed reduced forms.

In contrast to this, syntactic research nowadays often assumes that the morphological difference reflects different underlying phrase structures. Cardinaletti & Starke (1999), for example, developed a classification for pronouns in general, but also for German pronouns, which is very widely accepted in syntax. They propose a tripartition in strong, weak and clitic pronouns which differ structurally in that only strong pronouns are full DPs, whereas weak pronouns are deficient, and clitics are just heads.

Müller (2002) proposed a classification which even contains five different forms:

$$\text{Pron}_{strong} > \text{Pron}_{unstress} > \text{Pron}_{weak} > \text{Pron}_{red} \quad (> \text{Pron}_{clitic})$$
$$ihn\text{[+stress]} \quad ihn\text{[+anim]} \quad ihn\text{[-anim]} \quad es \quad (\text{'s})$$

In Müller's (2002) system, the forms differ with respect to prosodic (+/-stress), referential (+/−anim) and/or formal aspects (+reduced, +clitic).[20] It is hard to see what these different aspects have in common and why they should be appropriate for distinguishing the different pronominal forms. Mixing up such heterogeneous criteria also holds for Cardinaletti & Starke's (1999) proposal, especially their separating of non-clitic pronouns into strong and weak forms. This weakness in Cardinaletti & Starke's (1999) proposal is also criticized by Manzini (2014: 173):

> we also provide evidence that the strong/weak distinction is not used consistently in the literature. In other words, when different morphologies or distributions are observed among non-clitic pronouns, the strong and weak categories are invoked – but there is no uniform characterization of the properties and behaviors that strong and weak status correspond to.

3.2   The morphosyntax of pronouns in German dialects

Weiß (2015, 2016) proposes a modification of Cardinaletti & Starke's system which is theoretically and empirically (at least for German dialects) more appropriate. Weiß distinguishes three levels: use, morphology, and syntactic distribution. According to Weiß, pronouns can be used strongly or weakly. Strongly used pronouns can be,

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20. Müller (2002: 205): "the only reduced pronoun in Standard German is *es*"!

for example, focused, modified or coordinated, whereas weakly used pronouns lack these possibilities (cf. Section 3.3 and Cardinaletti & Starke 1999 for a more detailed description of the differences in the use of strong and weak pronouns).

Regarding the morphology, strongly used pronouns are always full forms ($Pron_{Full}$), whereas weakly used pronouns can appear in three different forms in German dialects: reduced ($Pron_{Red}$), clitic ($Pron_{Cl}$) and null. The two weakest forms of pronouns (i.e. the clitic and the null form) are restricted to the Wackernagel position (i.e. the position immediately after the finite verb in V1/V2 root sentences or after complementizers in embedded sentences[21]), whereas reduced pronouns are additionally possible in the prefield (SpecCP).

The pronominal forms have different structures also in Weiß' (2015, 2016) system: $Pron_{Full}$ are full DPs with the pronoun raised from φ° to D° (33a), whereas $Pron_{Cl}$ (and null pronouns) stay in the head position where they are initially merged (33b); $Pron_{Red}$ are structurally ambiguous (33c), (d), since they behave like clitics (in the Wackernagel position) or like phrases (in the prefield).

(33) a. [DP $Pron_{Full}$ [φP ~~Pron~~ [NP …
    b. [DP [φP $Pron_{Cl}$/ø [NP …
    c. [DP $Pron_{Red}$ [φP ~~Pron~~ [NP …
    d. [DP [φP $Pron_{Red}$ [NP …

Interestingly, German dialects never show more than two forms of a pronoun, because they possess at most one of the weak forms for each pronoun. They can be classified according to which non-full form they predominantly make use of. Therefore, we have "distinct clitic dialects which reflect the DP/φP distinction, and distinct reduced form dialects which do not reflect it in morphology" (Weiß 2015: 84). Bavarian is an example of a "distinct clitic" dialect that shows many clitic forms which are confined to the Wackernagel position (34a–c):

(34) a. Gesdan han=e=da=n   scho   zrugg geem.
       yesterday have.PRS.1SG=I=you=it already back   give.PTCP
    b. I han=da=n   gesdan   scho   zrugg geem.
       I have.PRS.1SG=you=it yesterday already back give.PTCP
    c. Dia han=e=n   gesdan   scho   zrugg geem.
       You have.PRS.1SG=I=it yesterday already back give.PTCP
       'I already gave it back to you yesterday.'

Central Hessian illustrates a "distinct reduced form" dialect, since it often has the same reduced form in the Wackernagel position as in the prefield, for example in the 3rd singular (35a–c) (Reinsberg 2011: 41):

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21. See also Weiß (2018) on the historical development of the Wackernagel position in German.

(35) a. SÄI singd   unn daazd   de gannse Doag.
        SHE sing.PRS.3SG and dance.PRS.3SG the whole day.ACC.SG

    b. Se singd   unn daazd   de gannse Doag.
        she sing.PRS.3SG and dance.PRS.3SG the whole day.ACC.SG
        'She sings and dances the whole day.'

    c. Dai Kist   hodd=se   de Inge gegäwwe.
        your box.ACC.SG have.PRS.3SG=she the Inge give.PTCP
        'She gave your box to Inge.'

Note that not every dialect belongs to one type only, because, depending on the respective person and number combination, the non-full form could be reduced, clitic, or null. Central Hessian, for example, behaves like a "distinct clitic" dialect in the 2nd singular, because the full form *du* 'you' is used in the prefield where it can be stressed (36a) or unstressed (36b), whereas the non-full form *de* is a clitic which is restricted to the Wackernagel position (36c) (cf. Reinsberg 2011: 37):

(36) a. DU singsd   unn daazd   de gannse Doag.
        YOU sing.PRS.2SG and dance.PRS.2SG the whole day.ACC.SG

    b. Du singsd   unn daazd   de gannse Doag.
        you sing.PRS.2SG and dance.PRS.2SG the whole day.ACC.SG
        'You sing and dance the whole day.'

    c. Dai Kist   hos=de   de Inge gegäwwe.
        your box.ACC.SG have.PRS.2SG=you the Inge give.PTCP
        'You gave your box to Inge.'

In some cases, the non-full form is a null pronoun. This is very often the case with the 2nd singular, but it is not restricted to it (cf. Weiß 2005, Axel & Weiß 2011; Volodina & Weiß 2016, 2018).[22] In Bavarian, for example, null subjects (i.e. *pro*-drop) occur in the 2nd singular and plural, and in the 1st plural (37a–c):

(37) a. morng   bist [*pro*] wieda gsund
        tomorrow be.PRS.2SG again healthy

    b. morng   sama [*pro*] wieda gsund
        tomorrow be.PRS.1PL again healthy

    c. morng   sads [*pro*] wieda gsund
        tomorrow be.PRS.2PL again healthy
        'Tomorrow, you/we/you are healthy again.'

With object pronouns, it is not really infrequent that only a full form exists, as shown in Table 5 for Bavarian:

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22. Weiß (2005) proposes that *pro* must be governed by pronominal agreement in C. This principle explains most (if not all) cases of *pro*-drop in German dialects (see also Axel & Weiß 2011; Volodina & Weiß 2016, 2018).

Table 5. Personal pronouns in Bavarian

	NOM		DAT		ACC	
1sg	i	e/a	miɑ	mɑ	mi	me
2sg	du	∅	diɑ	dɑ	di	de
3sg.m	eɑ	ɑ	eam	–	eam	(a)n
3sg.f	sie	s	iar	–	sie	(a)s
3sg.n	–	s	(eam)	–	–	(a)s
1pl	miɑ	∅	uns	–	uns	–
2pl	es	∅	enk	–	enk	–
3pl	se	s	ea(na)	–	si	s

With the exception of the 1st and 2nd singular, the dative pronouns show only a full form in Bavarian, as well as the accusative pronouns in the 1st and 2nd plural. In these cases, strongly and weakly used pronouns are distinguished only by stress. We have already seen in (36a) vs. (36b) above, that stress can be the relevant factor to distinguish between strongly and weakly used identical pronominal forms: in (36a), (b), here repeated as (38a), (b), we have a full subject pronoun in the prefield and the weakly used variant in (38b) differs from the strong one in (38a) only by the lack of stress.

(38) a. DU   singsd   unn daazd   de gannse Doag.
          YOU   sing.PRS.2SG and dance.PRS.2SG the whole   day.ACC.SG
      b. Du   singsd   unn daazd   de gannse Doag.
          you   sing.PRS.2SG and dance.PRS.2SG the whole   day.ACC.SG
          'You sing and dance the whole day.'

3.3   Strongly vs. weakly used pronouns

As described in Section 3.2, Weiß' (2015, 2016) system distinguishes between several levels on which pronominal forms show differences. On the morphological level, there are four forms to distinguish: full, reduced, clitic and null pronouns. Syntactically, pronouns appear in three positions within a sentence (prefield, Wackernagel position, elsewhere). Regarding their phrase structure, they are merged phrase-internally in φ°, and either stay there (clitics, null pronouns) or are raised to D° (full pronouns), with reduced pronouns having both options, cf. (33a-d) above.

According to Cardinaletti & Starke (1999) strong and non-strong (i.e. weak and clitic) pronouns differ in certain respects. A major difference is that strong pronouns are syntactically much more versatile than weak (in their terminology) or clitic pronouns, because they can be coordinated, modified, or dislocated. In

the system adapted here, there is a similar relation between morphological (or phrase-structural) 'heaviness' and syntactic flexibility. In this case, it is only the full pronoun that can be coordinated, modified,[23] or dislocated. Additionally, the smaller the pronoun is morphologically, the more it is syntactically restricted to the Wackernagel position.

Another difference concerns focus. As observed by Cardinaletti & Starke (1999: 48ff.), only strong pronouns can be contrastively focused.[24] Their example involves focusing with a focus particle like *only*. Applying this test to pronouns in German dialects reveals that only full forms can be focused, but not reduced ones. Although a reduced pronoun like *se* 'she' is possible in the prefield (cf. 39a), it yields ungrammaticality when combined with a focus particle (cf. 39b):

(39) a. SÄI/se singd   unn daazd   de gannse Doag.
          she   sing.PRS.3SG and dance.PRS.3SG the whole day.ACC.SG
          'She sings and dances the whole day.'
      b. Dai Kist   hodd   sogar SÄI/*se de Inge geem
          your box.ACC.SG have.PRS.3SG even she   the I. give.PTCP
          'Even she gave your box to Inge'

However, as we will see in the next section, focus is not the only pragmatic factor that requires the use of a full pronominal form.

4. Comparison

It is tempting to compare the distribution of full and non-full forms of articles and pronouns and investigate whether they appear in the same pragmatic contexts. For our comparison, we chose the following four contexts: deixis, relative clause, contrastive focus, contrastive topic. What all these contexts have in common is that they imply a set of alternatives for the DP referent, and they differ with respect to where the alternative set is calculated – on the sentence or on the DP level. In the first two contexts, it is the nominal domain where the alternative referents are

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23. As shown in Trutkowski & Weiß (2016), a pronoun modified by a relative clause must be a full form, whereas the resumptive pronoun optionally occurring within the relative clause is a clitic (or reduced) pronoun.

24. According to Cardinaletti and Starke (1999), this generalization does not hold absolutely, because deficient pronouns (i.e. weak and clitic ones) "are permissible with {contrastive stress; ostension} [...] when they refer to an entity which is already prominent in the discourse" (Cardinaletti & Starke 1999: 49). This is in contradiction to our results for German dialects since contrastive topics never allow reduced or clitic forms (cf. Section 4).

encoded at, whereas in the latter two contexts, two alternative DPs are contrasted at the sentential level.[25]

To demonstrate the behavior of the definite article in the different contexts, we repeat the respective examples given in Section 2. The order of the contexts is the following: deixis (40), relative clause (41), contrastive focus (42), contrastive topic (43).

(40) Es beschde is,   mer hocke   uns unner den
      the best   be.PRS.3SG we sit.PRS.1PL us under the(Det_Full)
      Baam   do!
      tree.AKK.SG there
      'It would be the best, we sit down under this tree there'   (Stoll 1989: 71)

(41) Un sie hot   sich   doch e bisje scheniert   wäije
      and she have.PRS.3SG herself still a bit   embarrass.PTCP because.of
      dem   Doischenaonne, wou se bei-m   Krobbe-suche
      the(Det_Full) mess.DAT.SG   that she during-the pot-search.DAT.SG
      fabriziert   hot.
      fabricate.PTCP have.PRS.3SG
      'And still she was a bit embarrassed because of the mess that she had made
      when searching the pot'.   (Pöschl 1985: 12)

(42) A: Woas? Du willschd   doi Oaldtaamer   vekaafe?
         what you want.PRS.2SG your old-timer.ACC.SG sell.INF
      B: No, im Lääwe   net! Isch moan   doch es
         no in life.DAT.SG not I   mean.PRS.1SG PTC the(Det_Red)
         Kabrio!
         cabriolet.ACC.SG!
      'A: What? You want to sell your old-timer?
      B: No, not in a lifetime! I mean the cabriolet!'   (Question 17)

(43) Letschd Woch   hoab   isch mer   en Meerschwoansche
      last   week.ACC.SG have.PRS.1SG I   myself a guinea pig.ACC.SG
      un en Kannikel   gekaaft. Es   Meerschwoansche is
      and a rabbit.ACC.SG buy.PTCP the(Det_Red) guinea pig.NOM.SG is
      gonz scheij   fresch, soach   isch der, awwer dodefär
      entirely pretty cheeky say.PRS.1SG I   you but   in.return

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25. Though the data and hence the basis of our comparison stems from different dialects, namely from South Hessian (article) and Bavarian (pronoun), we think that the results of our comparison are nevertheless reliable. The underlying assumption is that the syntactic distribution of articles and pronouns is similar in all dialects of German, so that the insights won on the basis of one dialect can be generalized on other dialects as well. This assumption seems to be justified both for pronouns (see Weiß 2015, 2016) and for articles (see the examples from Bavarian, Swiss German, and Frisian quoted in Section 2).

is   es   Kannikel   bsonners   broav!
be.PRS.3SG the(Det_Red) rabbit.NOM.SG particularly   well-behaved
'Last week I have bought a guinea pig and a rabbit. The guinea pig is really cheeky, I tell you, but in return the rabbit is particularly well-behaved.'

<div align="right">(Question 9)</div>

Now let us see how pronouns behave in the respective contexts:

(44) Am bestn waads,   du froagsd   sie do   ent.
     at   best   be.SBJV.3SG you ask.PRS.2SG her there yonder.
     'It were best, you asked her over there.'

(45) Lustig, dass ea des sogd,   der wo   sunsd   imma
     funny that he that say.PRS.3SG he REL PTC otherwise always
     staad is.
     silent be.PRS.3SG
     'Funny, that he says that, who is always silent otherwise.'

(46) A: Wos? Du megsd=as   iar ned vokaafa?
        what you want.PRS.2SG=it her not sell.INF
     B: Na – oba i daad=s   dia   vokaafa!
        no   but I would.SBJV.1SG=it you(Pron_Full) sell.INF
        *daad=da=s   vokaafa!
        *would.SBJV.1SG=you(Pron_Red)=it sell.INF
        'A: What? You don't want to sell it to her?
        B: No – but I would sell it to you!'

(47) a. Gesdan hob=e   im   Kino   d=Maria   und an
        yesterday have.PRS.1SG=I in.the cinema.DAT.SG the=Mary and the
        Hans troffa.
        John meet.PTCP
        'Yesterday I have met Mary and John at the cinema.'
     b. Im   Zug   triif=e   sie ja regelmäßig,
        in.the train.DAT.SG meet.PRS.1SG=I her PTC regularly
        dogeng   hob=e   eam   scho länga
        on.the.other.hand have.PRS.1SG=I him(Pron_Full) already longer
        nimma   gseng.
        not.more see.PTCP
        'I meet her regularly in the train, him on the other hand I have not seen in a while.'

Summarizing, we get the following results (48):

(48)   Deixis (Restrictive) RC Contrastive focus Contrastive topic
     Article full   full   reduced   reduced
     Pronoun full   full   full   full

Whereas in deictic contexts and with relative clauses it is the full forms that always occur, pronouns and articles show different distribution in contexts with a contrastive topic or focus. This leads to the conclusion that the level where the factor contrast is encoded at plays a crucial role in accounting for the difference in the occurrence of the respective forms only for articles, but not for pronouns.

5. Analysis

We claim that the difference between personal pronouns and definite articles lies in their syntactic structure. Whereas pronouns show a minimal syntactic structure of the DP (49), a more complex syntax is present in case of the articles, at least with the full form, because it selects for a FocP (cf. 50a, b). Therefore, only the definite article can capture the different contrastive readings either on the sentential level or within the nominal domain and hence shows up as the full or the reduced form. In contrast, pronouns project only the necessary sub-projections, namely NP, φP, and DP, so that they cannot express the difference between sentence- and DP-based alternatives. Specifically, the lack of a DP-internal FocP prevents them from evoking alternative referents at the DP level.

(49)   [DP [φP [NP e]]] (= Pronouns)

(50)   a.   [DP [NP]]   (= Det_{Red})
       b.   [DP [FocP [DemP [NP]]]] (= Det_{Full})

There is a long-standing discussion whether pronouns are intransitive DPs (i.e., lacking an NP complement), as Abney (1987) assumed, or not (see Panagiotidis 2002 for a general discussion). Seen in the light of our results, we are forced to conclude that pronouns, though being DPs, do not possess such a complex structure as non-pronominal DPs.

6. Conclusion

The purpose of this paper was to investigate the distribution of full and reduced forms of articles and pronouns in different German dialects. Our investigation was guided by the following two hypotheses:

Hypothesis I: The different morphological forms of articles and pronouns exhibit similar, though not identical syntactic distributions.
Hypothesis II: The syntactic distribution is governed by comparable information-structural restrictions.

The empirical data we presented here confirms both hypotheses. Though both articles and pronouns behave similarly in the four contexts, they differ with respect to how they express contrast (= *hypothesis I*). Our results clearly show the influence of information-structural factors on morphosyntactic variation, i.e. the choice of the appropriate morphological form of articles or pronouns respectively (= *hypothesis II*).

Furthermore, the data provide strong evidence for the assumption of a split-DP in analogy to a split-CP. The analogy is shown with respect to a FocP within the DP whenever Det_{Full} is used. However, there is no evidence in our data for the presence of a DP internal FocP in cases with Det_{Red} and pronouns in general.[26] Peculiarly, the structural difference between full and non-full pronouns on the one hand, and full and non-full articles on the other is not the same. What follows from this conclusion is that "full" does not necessarily always mean the same thing structure-wise.

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References

Primary sources

Pöschl, Erika. 1985. *Paonnekuche in de Sunn gebagge. Ourewälle Gschichte. Brauchtum un Gedichte vun sällemols un heitzedaogs.* Ober-Ramstadt, Rohrbach, self-published.

Pöschl, Erika. 1987. *Oigebutzeld. Die Muttersprache ist der Mantel der Geborgenheit. Geschichten und Gedichte in Odenwälder Mundart.* Ober-Ramstadt, Rohrbach, self-published.

Sauerwein, Friedrich. 1985. *Vadder, ve'zäihl emol. Ourewäller G'schichte un Schnorrn vun friejer un heit.* Kevelaer: Anrich.

Stoll, Joseph. 1989. *Moi Nadurgeschichd un annern Sache zum Noochdenke un zum Lache. Gedichte und Erzählungen in Mundart*, Kurt Gioth (ed.). Bensheim-Gronau: Gmeiner.

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26. Additionally, our empirical data does not provide any evidence for the often-made assumption of a DP internal TopP (e.g. Aboh 2004; Dimitrova-Vulchanova & Giusti 1998; Ihsane & Puskas 2001).

Secondary literature

Abney, Steven. 1987. The English Noun Phrase in Its Sentential Aspect. PhD dissertation, MIT.

Aboh, Enoch. 2004. Topic and Focus within D. *Linguistics in the Netherlands* 21: 1–12.
https://doi.org/10.1075/avt.21.04abo

Axel, Katrin & Weiß, Helmut. 2011. Pro-drop in the history of German. From Old High German to the modern dialects. In *Null Pronouns* [Studies in Generative Grammar 106], Peter Gallmann & Melani Wratil (eds), 21–51. Berlin: De Gruyter.
https://doi.org/10.1515/9783110238716.21

Bach, Emmon. 1974. *Syntactic Theory*. New York NY: Holt, Rinehart and Winston.

Brugger, Gerhard & Prinzhorn, Martin. 1996. *Some properties of German definite articles*. Ms, University of Vienna.

Cabredo-Hofherr, Patricia. 2013, November 5. Reduced definite articles and restrictive relative clauses. Handout, Kolloquium Forschergruppe Relativsätze, Frankfurt am Main, 1–27.

Cardinaletti, Anna & Starke, Michal. 1999. The typology of structural deficiency: On the three grammatical classes. In *Clitics in the Languages of Europe* [Empirical Approaches to Language Typology, Eurotyp 20–5], Henk van Riemsdijk (ed.), 145–233. Berlin: De Gruyter.

Dimitrova-Vulchanova, Mila & Giusti, Giuliana. 1998. Fragments of Balkan nominal structure. In *Possessors, Predicates and Movement in the Determiner Phrase* [Linguistics Today 22], Artemis Alexiadou & Chris Wilder (eds), 333–361. Amsterdam: John Benjamins.
https://doi.org/10.1075/la.22.12dim

Dirani, Seyna. In preparation. Warum gleich zwei definite Artikel? Wie die Informationsstruktur morphosyntaktische Variation steuert – untersucht am Beispiel der definiten Artikelformen im Südhessischen. PhD dissertation, Goethe-University Frankfurt.

Dirani, Seyna. To appear. Zum unterschiedlichen Artikelgebrauch im Südhessischen – Empirie trifft auf Theorie. In *Syntax aus Saarbrücker Sicht, 3: Beiträge der SaRDiS-Tagung zur Dialektsyntax*, Augustin Speyer & Julia Schüler (eds).

Ebert, Karen. 1971a. *Referenz, Sprechsituation und die bestimmten Artikel in einem Nordfriesischen Dialekt* [Studien und Materialien 4]. Bredstedt: Nordfriisk Instituut.

Ebert, Karen. 1971b. Zwei Formen des bestimmten Artikels. In *Probleme und Fortschritte in der Transformationsgrammatik. Referate des 4. Linguistischen Kolloquiums, Berlin, 6.–10.10.1969* [Linguistische Reihe 8], Dieter Wunderlich (ed.), 159–173. München: Hueber.

Fabricius-Hansen, Cathrine. 2009. Überlegungen zur pränominalen Nicht-Restriktivität. In *Koordination und Subordination im Deutschen*. [Linguistische Berichte. Sonderheft 16], Veronika Ehrlich et al. (eds), 89–112. Hamburg: Buske.

Fleischer, Jürg, Kasper, Simon & Lenz, Alexandra N. 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.

Freywald, Ulrike, 2017. Syntaktische Besonderheiten des Berlinischen. In *Aktuelle Tendenzen in der Variationslinguistik*, Meike Glawe, Line-Marie Hohenstein, Stephanie Sauermilch, Kathrin Weber & Heike Wermer (eds), 177–207. Hildesheim: Olms.

Hawkins, John. 1978. *Definiteness and Indefiniteness. A Study in Reference and Grammaticality Prediction*. London: Croom Helm.

Himmelmann, Nikolaus. 1997. *Deiktikon, Artikel, Nominalphrase: Zur Emergenz syntaktischer Struktur* [Linguistische Arbeiten 362]. Tübingen: Niemeyer.
https://doi.org/10.1515/9783110929621

Ihsane, Tabea & Puskas, Genoveva. 2001. Specific is not definite. *Generative Grammar in Geneva (GG@G)* 2: 39–54.

Krifka, Manfred. 2008. Basic notions of information structure. *Acta Linguistica Hungarica* 55, 243–276. https://doi.org/10.1556/ALing.55.2008.3-4.2

Löbner, Sebastian. 1985. Definites. *Journal of Semantics* 4, 279–326.
https://doi.org/10.1093/jos/4.4.279

Manzini, M. Rita. 2014. Grammatical categories: Strong and weak pronouns in Romance. *Lingua* 150: 171–201. https://doi.org/10.1016/j.lingua.2014.07.001

Meier, Cécile. 2012, 19–20 March. Swiss German relative clauses. Handout, Workshop on Semantic and Pragmatic Properties of (Non) Restrictivity, Stuttgart, 1–9.

Müller, Gereon. 2002. Harmonic alignment and the hierarchy of pronouns in German 2001. In *Pronouns – Grammar and Representation* [Linguistics Today 52], Horst Simon & Heike Wiese (eds), 205–232. Amsterdam: John Benjamins. https://doi.org/10.1075/la.52.13mul

Panagiotidis, Phoevos. 2002. Pronominal Nouns. In *Pronouns – Grammar and Representation* [Linguistics Today 52], Horst Simon & Heike Wiese (eds), 183–203. Amsterdam: John Benjamins. https://doi.org/10.1075/la.52.12pan

Reinsberg, Franziska. 2011. Morphosyntax der Personalpronomen im Mittelhessischen. Magister thesis, Goethe-University Frankfurt.

Repp, Sophie. 2010. Defining 'contrast' as an information-structural notion in grammar. *Lingua* 120: 1333–1345. https://doi.org/10.1016/j.lingua.2009.04.006

Roehrs, Dorian. 2009. *Demonstratives and Definite Articles as Nominal Auxiliaries* [Linguistics Today 140]. Amsterdam: John Benjamins. https://doi.org/10.1075/la.140

Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1(1): 75–116. https://doi.org/10.1007/BF02342617

Schanen, François & Zimmer, Jaqui. 2012. *Lëtzebuergesch Grammaire Luxembourgeoise*. Esch-sur-Alzette: Schortgen.

Schiepek, Josef. 1899–1908. *Der Satzbau der Egerländer Mundart, 2 Teile*. Prag: Verlag des Vereines für Geschichte der Deutschen in Böhmen.

Schmitt, Viola. 2006. Hessische Relativsätze. Master thesis, University of Vienna.

Schwarz, Florian. 2009. Two Types of Definites in Natural Language. PhD dissertation, University of Massachussetts at Amherst.

Studler, Rebekka. 2011. Artikelparadigmen. Form, Funktion und syntaktisch-semantische Analyse von definiten Determinierern im Schweizerdeutschen. PhD dissertation, University of Zurich, <https://opac.nebis.ch/F/?local_base=NEBIS&CON_LNG=GER&func=find-b&find_code=SYS&request=006497585> (08 August 2018).

Studler, Rebekka. 2014. The morphology, syntax and semantics of definite determiners in Swiss German. In *Crosslinguistic Studies on Noun Phrase Structure and Reference* [Syntax and semantics 39], Patricia Cabredo-Hofherr & Anne Zibri-Hertz (eds), 143–171. Amsterdam: Elsevier.

Trutkowski, Ewa & Weiß, Helmut. 2016. When personal pronouns compete with relative pronouns. In *The Impact of Pronominal Form on Interpretation* [Studies in Generative Grammar 125], Patrick Grosz & Pritty Patel-Grosz (eds), 135–166. Berlin: De Gruyter.
https://doi.org/10.1515/9781614517016-006

Volodina, Anna & Weiß, Helmut. 2016. Diachronic development of null-subjects in German. In *Quantitative Approaches to Grammar and Grammatical Change. Perspectives from Germanic*, Sam Featherston & Yannick Versley (eds), 187–205. Berlin: De Gruyter.
https://doi.org/10.1515/9783110401929-010

Volodina, Anna & Weiß, Helmut. 2018. Referential null subjects in German: Dialects and diachronic continuity. In *Null Subjects in Generative Grammar. A Synchronic and Diachronic Perspective*, Federica Cognola & Jan Casalicchio (eds), 261–284. Oxford: OUP.

Weiß, Helmut. 1998. *Syntax des Bairischen. Studien zur Grammatik einer natürlichen Sprache* [Linguistische Arbeiten 391]. Tübingen: Niemeyer. https://doi.org/10.1515/9783110912487

Weiß, Helmut. 2005. Inflected complementizers in continental West Germanic Dialects. *Zeitschrift für Dialektologie und Linguistik* 72: 148–166.

Weiß, Helmut. 2015. When the subject follows the object. On a curiosity in the syntax of personal pronouns in some German dialects. *Journal of Comparative Germanic Linguistics* 18(1): 65–92. https://doi.org/10.1007/s10828-015-9071-4

Weiß, Helmut. 2016. Pronominalsyntax deutscher Dialekte. In *Syntaktische Variation. Areallinguistische Perspektiven* [Wiener Linguistische Arbeiten 2], Alexandra Lenz & Franz Patocka (eds), 121–148. Wien: V&R Uni-press.

Weiß, Helmut. 2018. The Wackernagel position and complementizer agreement – The emergence of a syntactic particularity at the left edge of the German middle field. In *Clause Structure and Word Order in the History of German* [Oxford Studies in Diachronic and Historical Linguistics 28], Agnes Jäger, Gisella Ferraresi & Helmut Weiß (eds), 132–154. Oxford: OUP.

Wiltschko, Martina. 2013. Descriptive relative clauses in Austro Bavarian German. *Canadian Journal of Linguistics* 58(2): 157–189. https://doi.org/10.1017/S0008413100002991

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Morphological variation is a rather young, yet fascinating topic to study in its own right because it offers challenging evidence both for the autonomy of morphology (morphomic processes) as well as for its tight interconnection with other grammatical domains, notably phonology and syntax. Covering a wide range of phenomena (e.g. negation structures, form function-mismatches in the verbal and nominal domain, loss of morphosyntactic feature values, etc.), the contributions to this volume combine in-depth empirical studies with the explanatory potential of modern theories of grammar as well as approaches for capturing and modelling microtypological diversity.