

Studies in Turkish as a Heritage Language

STUDIES IN BILINGUALISM

EDITED BY
Fatih Bayram

60

JOHN BENJAMINS
PUBLISHING COMPANY

Studies in Turkish as a Heritage Language

Studies in Bilingualism (SiBil)

ISSN 0928-1533

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Volume 60

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John Benjamins Publishing Company

Amsterdam / Philadelphia



The paper used in this publication meets the minimum requirements of the American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

DOI 10.1075/sibil.60

Cataloging-in-Publication Data available from Library of Congress:
LCCN 2020040599 (PRINT) / 2020040600 (E-BOOK)

ISBN 978 90 272 0793 7 (HB)

ISBN 978 90 272 6050 5 (E-BOOK)

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PREFACE

Issues in heritage language research

Perspectives from Turkish in Northwestern Europe

Carol W. Pfaff

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The current volume is devoted to Turkish as a heritage language and provides contemporary findings on an important language, well-established and still widely spoken in Northwestern Europe. Additionally, it serves as an important up-to-date compendium of issues of social and linguistic issues in heritage language research.

Heritage languages have been investigated (not necessarily under this name) at least since Haugen's 1953 book, *The Norwegian Language in America*. The collection, *Investigating Obsolescence* edited by Dorian 1989 provides a selection of papers on languages undergoing contraction and death in a wide variety of contexts. Over the past two decades, the term "heritage language" has come to be accepted as a new subfield of bilingualism studies, which is increasingly recognized as important for sociolinguistic and for theoretical linguistic work on the development of minority languages in contact (see Valdés, 2000; Polinsky & Kagan, 2007; Rothman, 2009; Montrul 2010; Polinsky, 2018; Kupisch & Rothman, 2018; Aalberse, Backus, & Muysken, 2019; Polinsky & Scontras, 2020).

While in the seminal collection edited by Dorian (1989) the contributions are divided into three sections (ten chapters focused on context, ten on structure and five chapters devoted to invited commentaries), many of the papers in the present collection, in contrast, focus on whether/how it is possible to link the analysis of the social context of the speakers to the linguistic outcomes in a single study. Another dichotomy proposed by Polinsky and Kagan (2007), is that of heritage languages "in the wild" and "in the classroom". These contexts are not always distinct; indeed the situation "in the wild" can and does permeate the classroom discourse in the diaspora. Additionally, several investigators include the study of Turkish heritage language in a third set of contexts, "in the laboratory", including structured sociolinguistic or psycholinguistic elicitation or various kinds of testing, as discussed below.

Turkish has been a vital presence in Northwestern Europe since the 1960s. It is of great interest linguistically due to its typological and genetic difference from the Indo-European languages with which it is in contact, and socially as a result of

the large number of speakers and the ensuing sociopolitical issues for the majority state and local governments. However, the fact that the Turkish-speaking communities are so large, together with the geographical proximity to Turkey and social media connections has enabled communities in the diaspora to develop a wide range of social institutions which contribute to continuing input in Turkish beyond family and immediate neighborhood contacts (see Pfaff, 2015; Pfaff, Dollnick, & Herkenrath, 2017 for discussion and illustration).

The population from Turkey in Northwestern Europe is notably heterogeneous; ranging from 1st to 4th generations, varying in socioeconomic status, education and contact with speakers of the dominant languages. Thus, it provides an ideal opportunity to investigate the interplay of social and linguistic factors. While the present volume does not represent the entire spectrum of heritage language speakers of Turkish it provides snapshots of important segments of the communities currently still using Turkish in their daily lives, including some immigrants from Turkey as adults but mostly those who grew up or are still growing up in Germany, the Netherlands or Sweden. Taken together these snapshots form a collage which allows the readers a wider perspective on the big picture necessary to understand the developments in Turkish varieties in European diaspora, the “losses”, the “gains” and simply the overt or covert changes in structures, functions and usage.

The structural development and use of Turkish in heritage language (HL) contexts have been studied from several different perspectives since the 1980s, Verhoeven & Boeschoten 1986, Johanson 1993 and Rehbein, Herkenrath & Karakoç 2009, Şimşek & Schroeder, 2011, to name only a few. See surveys in Backus 2004, Backus, Jorgensen and Pfaff 2010 and Pfaff, 2015. papers in this volume provide a rich survey of current findings, placed in theoretical and social context by the authors. In the following, I present a sampling of the major themes of the papers.

Who are HL speakers?

In the contemporary research tradition, the definition of “Heritage language speakers” has been controversial. Polinsky and Kagan (2007, p. 369) distinguish broad and narrow definitions, the former going back to Fishman (2001, p. 81), the later restricted to those for whom the language in question was used in their families as they were growing up and who themselves are bilingual to some extent in the heritage language and the socially dominant language in the countries where they live. The Turkish speakers at the center of the present volume clearly fall into the second category, though, as with most dichotomies, the distinction between heritage languages “in the wild and in the classroom” is blurred for many speakers, as HL instruction for Turkish and bilingual education programs have become established in

many European countries. Participation in such classes is a background input factor analyzed in several of the papers here. As noted earlier, input is available in social contexts well beyond organized HL classes, the family and neighborhood, particularly in urban centers where community infrastructure has become well established.

The speakers whose Turkish is the focus of the papers here range from first generation (G1), the generation of speakers who immigrated from Turkey, generation 1.5 (G1.5), intermediate generation who immigrated as children, generation two (G2), second generation whose parents belong to G1 and/or G1.5. The majority of the papers deal with children, adolescents and young adults of G2 in Germany: Goschler, Schroeder, and Woerfel (Chapter 5), Krause, Rinker, and Eulitz (Chapter 7), Bonacker and Karakoç (Chapter 8), Willard, Cigtay-Akar, Kohl, & Leyendecker (Chapter 3). Kupisch, Lloyd-Smith, and Stanger (Chapter 9), young adult in Germany Herkenrath (Chapter 10), older children Daller (Chapter 2), adolescents and adults Lloyd-Smith, Bayram & Iverson (Chapter 4), Erduyan (Chapter 11) discusses interaction among teachers of G 1.5 and G2 and pupils from G2, some of whom have considerable exposure to input and interaction in Turkey. Two papers deal with Turkish HL speakers in other countries, with socially dominant Germanic languages: 7–18-year-olds in the Netherlands, Arslan, and Bastiaanse, (Chapter 6), and young children in Sweden Bohnacker and Karakoç (Chapter 8).

All of the papers are sensitive to ecological issues, as discussed in Haugen (1972), Blackledge (2008), Hornberger & Wang (2008), relating to the history of the speaker/writer population under investigation and their parents and the extent of contact and interaction with other speakers of Turkish vis-à-vis speakers of the majority communities. These are crucial in determining the quantity and quality of the input to the population and assessing their motivation for keeping and expanding Turkish, which, in turn are essential to understanding, if not predicting, the effects on the linguistic characteristics of the speaker/writer varieties.

Methods of investigation

Naturalistic data

Within the realm of studies of HL “in the wild”, several of the papers here analyze naturalistic interactions in dyadic conversational interviews. Kupisch, Lloyd-Smith, and Stangen (Chapter 9) use short naturalistic oral interviews with 21 early bilingual adults as the basis of their quantitative Turkish Use Score (TUS). Herkenrath (Chapter 10) analyzes stretches of a long interview in German and Turkish recounting the subject’s subjective experiences with both languages in the course of narrating difficult encounters with German bureaucracy. Erduyan’s (Chapter 11)

ethnographically oriented look at naturalistic interaction in Turkish classes in a German secondary school (Chapter 11) highlights how language use by heritage speakers of different generations with different language biographies and exposure to input in the wild permeates language use in the classroom in interaction among Turkish/German secondary pupils in Berlin and their Turkish teachers of the intermediate and 2nd generations.

Laboratory data

As mentioned above, research on heritage languages has now moved beyond “in the wild” and “in the classroom” to expand into “in the laboratory” as well. Turkish HL is no exception, as is evident in several of the studies here.

Studies which can be classified as “in the laboratory” can include a range of elicitation techniques, including questionnaire surveys of language use and self-assessed proficiency, proficiency tests, structured elicitation of narratives, grammaticality and/or acceptability judgements and psycho- or neurolinguistic investigations of various types. Several studies in the present volume employ such empirical techniques and include valuable discussion of their development, (for further review see, Bayram, Di Pisa, Rothman, & Slabakova, in press).

Self-assessment of proficiency, exposure and language use are used in several papers, (Chapter 6), (Chapter 7) and (Chapter 3). Kupisch et al. (Chapter 9) adapt the Weber-Fox & Neville (1996) questionnaire, which asks the respondents to looking back to their use at earlier ages) to arrive at the quantitative Turkish Use Score (TUS).

Closest to naturalistic data are narrative elicited by structured methods which provide partially controlled comparable contexts. For example, Arslan and Bastiaanse (Chapter 6) use picture description and narratives of films or folktales as well as spontaneous speech while Daller (Chapter 1) and Lloyd-Smith et al. (Chapter 4). employ the widely used Frog Stories, for which monolingual and second language data are widely available. Bohnacker and Karakoç (Chapter 8) use the MAIN, Multilingual Assessment Instrument for Narrative, developed by Gagarina et al. (2012) to elicit narratives and answers to comprehension questions for typically developing and language impaired multilingual children speakers of various languages.

Several papers employ proficiency measures derived from existing (standardized) tests, developed for other populations or settings such as the Dilmer Turkish Test forced choice test of grammatical appropriateness used in Turkish classes for L2 learners in Turkey in Krause et al. (Chapter 7), or the PPVT-4 vocabulary test, developed to assess the typically developing and delayed acquisition in English of young children, adapted for the assessment of Turkish 7th graders by Willard, Cigtay-Akar, Kohl and Leyendeker (Chapter 3).

Linguistic feature(s)

The authors focus on a wide range of linguistic features, particular, grammatical structures or their constraints that differ between Turkish contrasted with those of the dominant Germanic languages in contact. These include: the encoding of motion events (Chapter 5), evidentials (Chapter 6), plural marking (Chapter 4), (non)-finite clausal subordination (Chapter 8) and the lexicon, (Chapter 1, Chapter 2). These specific structural domains are complemented by work examining language switching (Chapter 9) and the perception of nativeness of speech in Turkish and German by monolingual native speakers of both language (Chapter 9).

Analysis and interpretation of findings

As Aabrese, Backus and Muysken (2019, p. 23) point out, HLs have been analyzed either from the perspective of the diaspora communities themselves (the newly emerging varieties) or from perspective of the varieties in the “home” country. In the present volume, analyses of social factors generally focus on the diaspora communities, while the linguistic analyses often take the (standard) varieties in Turkey as the “baseline” of comparison. The choice of a baseline variety is problematic: Serratrice 2020 Should it be the language as represented in standard grammars, the regional varieties which made up the input in the families of most of the speakers, the present-day varieties in Turkey which may have undergone change that is more or less accessible to the present diaspora populations. Though regional variation and change in Turkey are acknowledged, most of the papers in the present volume, explicitly or implicitly adopt monolingual production as the standard of comparison. See Kupisch & Rothman (2018) for further discussion.

Another problem, first addressed for Turkish by Verhoeven and Boeschoten (1986) is whether acquisition of Turkish in a second language environment, in their case in the Netherlands, could best be modeled as delay, stagnation, or attrition. The papers in the present volume explicitly acknowledge the issue at hand, see Lloyd-Smith et al. (Chapter 4) but generally do not address the controversial terminology of “attrition” vs. “incomplete learning” vs. “complete acquisition of emerging new varieties” in the diaspora communities. They refer to the problems of assessment in the absence of longitudinal studies following speakers through their ontological development. A few mention the problem of divergence in the input due to regional varieties within Turkey. Erduyan’s (Chapter 11) contribution explicitly addresses the change in varieties of Turkish in Turkey, accessed differentially by the pupil with more contact there than his G 1.5 and G2 teachers in the Turkish class.

Once divergences between diaspora varieties and monolingual varieties in Turkey have been established, a further issue comes to the forefront: are these differences to be attributed to cross-linguistic transfer, to priming from structural or pragmatic alternatives in the contact languages or to universal tendencies of change or to idiosyncratic changes of individual speakers or within local social networks?

The current volume reflects all of the above discussed themes. It brings together data collected and amassed to the highest and most contemporary research standards for studying structural contact phenomena in oral and written, formal and informal contexts, experimental psycholinguistic, ethnographic participant observation and including perceptions of Turkish and non-Turkish speakers. Taken as a whole, the volume makes a significant contribution not only to the research on Turkish in the diaspora, but to heritage language research in general. The use of varied techniques in several of the studies and the extensive reference to and linkages with previous work on monolingual and bilingual speakers of Turkish is very strong.

Still many questions are open for further research: There is still insufficient evidence from corpora on actual input varieties and on developmental data from earlier stages of acquisition. The individual empirical studies collected here address only a small fraction of the heterogeneous population of HL Turkish speaker/writers. Comparison of the data from these corpora and other existing corpora, while not strictly comparable in all details of elicitation or analysis, would surely prove to be a valuable and exciting resource for future research on wider groups of adults, adolescents and children and on the extension of research to G3 and G4 Turkish speakers in Northwestern Europe.

Acknowledgements

I am grateful to Fatih Bayram and Benji Wald for comments and suggestions on previous versions.

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Turkish as a heritage language

Its context and importance for the general understanding of bilingualism

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It has been almost six decades since the first Turkish guest workers began their journey to Western Europe in the early 1960s. At that time the post-war economy was booming and the demand for labor had never been higher. The first wave emigrated to Germany in 1961, followed by Austria, Belgium, and the Netherlands in 1964, then France in 1965, and finally Sweden in 1967. The recruitment agreements were intended and believed to be mutually beneficial. The Western economies were able to continue growing with an injection of a much needed cheap workforce while unemployed, mostly uneducated and unskilled Turkish men had a second chance to turn things around both for themselves and their families whom they left behind. The fact that families (wives, children, etc.) were left behind was only natural because initially both the host countries and the Turkish workers had the impression that, as the name *guest worker* itself suggests, their stay would only be temporary. That is, once the economy was up and running, and thus less dependent on foreign workers, these workers would go back to Turkey with new skills and knowledge that would also help transform the Turkish economy from an agriculture-driven one to an industrial one. Back then no one anticipated how much the Turkish minority community would affect the sociocultural and socioeconomic structure of the communities that hosted them. Today, there is an undeniable presence of the Turkish community in most, if not all, major Western European cities.

Despite all the challenges, the Turkish workers' community continued to grow but started to change as a result of (i) the family reunification processes in the 1970s; (ii) Western governments' incentives for sending the workers back to Turkey in the 1980s; (iii) immigrants' right to apply for citizenship of the host country in the 1990s; and finally (iv) the host country governments' integration and assimilation policies in the 2000s (Auernheimer, 2006; Ross, 2009; Yurdakul & Bodemann, 2006; Kütük, 2015; Esenlikçi & Engin, 2019). Accordingly, the predominantly male Turkish workers community transformed into a larger, family-oriented one complete with

women and children. The wives and children of the Turkish immigrant workers brought to Europe were also mostly poorly educated, if at all. In parallel, they were not necessarily equipped, professionally or otherwise, to easily “integrate” into the mainstream socio-economic life of the host country. In other words, assimilation outside of the immediate Turkish diaspora community in which they resided presented significant challenges (Daller & Treffers-Daller, 2014; Orendt, 2010). In the early years, few from the European industry or governments, as the dearth of policy and intervention showed, acknowledged the challenges that low levels of education/literacy would entail for the Turkish immigrants (Abadan-Unat, 1985; Kıray, 1976). In fact, targeting this specific socioeconomic type of Turkish immigrants was purposeful by the industrial entities, as such workers were destined for poorly paid, low-level, unpopular jobs (Wallraff, 1988). Today, three-generations of almost 6 million people with a Turkish background are estimated to reside in Europe, forming one of the largest immigrant communities. Of those, about 3 million reside in Germany with about 800,000 Turks possessing German citizenship, followed by around 1 million in France; 500,000 in Austria; 500,000 in the Netherlands; 300,000 in the UK and 250,000 in Belgium (De Bel-Air, 2016; MFA, 2020).

The above multifaceted process of Turkish migration to Western Europe influenced and shaped the way in which Turkish communities dealt with issues such as identity, cultural heritage, social integration as well as educational and professional opportunities. The ways in which the Turkish language has been perceived, used and survived across generations have been and still are affected and shaped by an interplay of various factors in these processes of immigration and integration. Turkish was the dominant language of the first-generation immigrants for the first decade or so. After the family reunification wave in the late 80s, the new bilingual generations started to emerge *en masse*. These individuals, born in the host country, grew up with Turkish as the home language. However, differently from their parents, they learned the societal majority language in childhood and progressively became dominant speakers of the majority language (if not a so-called *Turkified* version of it, such as *Kiezdeutsch*, e.g., Weise, 2012) over time and generations. With this process, it is fair to say that Turkish became a prolific heritage language across Europe after the beginning of labor immigration in the early 1960s.

The term heritage language (HL) and the subfield of bilingualism that bears the same name originated in the North American context (e.g., Cummins, 1991; Fishman, 2001; Valdés, 2001; Rothman, 2007, 2009; Montrul, 2004, 2008, 2016; Polinsky, 2018). In broad terms, an HL bilingual is an individual whose native first language is a minority language that differs from the main language spoken in the larger society (Rothman, 2009; Montrul, 2016; Polinsky, 2018). The recurring pattern documented in HL studies is that HL grammars (in virtually all domains of grammar) can differ, on a continuum, from that of age and socio-economically

matched dominant-natives growing up in their heritage home country (see Montrul, 2016; Polinsky, 2018; Kupisch & Rothman, 2018 for review).

Turkish, however, has a much longer history of being studied as an HL than is reflected by the eventual incorporation of the term HL itself starting in the 1990s (and still not always used). Of course, HLs as we understand them today in many contexts were studied under different labels and still are today. For example, the term *community language* is often used in Australia covering clearly the same context of HL (e.g., Baker & Jones, 1998). In the context of Europe where the term HL has become more and more commonplace, viewing languages like Turkish as an *immigrant language* (a term still used often in the language contact approach) competes with the term HL. However, this is mostly terminological in nature. Various studies with people with a Turkish background in their participant groups primarily focused on their second language acquisition patterns (e.g., Jansen et al., 1981; Clahsen & Muysken, 1986; Coenen, 1987) and/or socioeconomic and political issues related to their integration (see e.g., Katzenson, 2016; Dedeoğlu & Deniz Genç, 2017). Studies that looked at Turkish as an immigrant community language started emerging from Germany in the early 70s, unsurprisingly as even then the population of Turkish people in Germany had reached almost five hundred thousand (Şen, 2003). With authorities starting to recognize the relevance of and need for research to make more informed policies on ethnic/immigrant communities, specific projects started to collect data from Turkish-German bilingual children and investigated their language use patterns. For instance, the EKMAUS study (Entwicklung von Konzepten und Materialien für die Förderung ausländischer Kinder und Jugendlichen im schulischen und außerschulischen Bereich, 1983–1986) and the KITA project (Natürlicher bilingualer Sprachenverb von KITA-Kindern: Krippenalter bis erste Grundschuljahre, 1987–1992) both carried out in Berlin investigated Turkish/German bilingual children's speech through interviews and experiments (see, e.g., Pfaff, 1991, 1995). In the following years, studies from other contexts such as Turkish in the Netherlands, France, Austria, the US, and Australia started to appear in international academic venues (see Aarsen, Akıncı, & Yağmur, 2001; Backus, 2004; Yağmur, 2016; Dogruöz & Backus, 2010; Yağmur, 2004, 2009, 2011; Valk & Backus, 2013).

It is, however, only after the turn of the new millennia that studies investigating Turkish in its diaspora started looking at the phenomena with insights from the existing HL literature (see for a review Bayram, 2013; Bayram & Wright, 2018). Despite various compelling reasons, using Turkish (minority language) as a tool for understanding issues related to language change, HL acquisition specifically and bilingualism, cognition and the brain in general has been considerably underutilized as compared to others. For example, the Turkish diaspora is larger than almost any other immigrant community in Europe with nearly six million members

(see above), making Turkish one of the most widely spoken minority languages. With sixty-plus years of immigration history, the Turkish community is formed by several generations of speakers creating an optimum environment for its vitality and maintenance across generations (Extra & Yağmur, 2010; Yağmur & Van de Vijver, 2012). This also makes it special for investigating questions related to language transmission across generations in HL contexts (Bayram, Pascual y Cabo, & Rothman, 2019). As it exists across almost all European countries, the Turkish language in its diaspora also offers a very high level of comparability across different language pairings, age groups, proficiencies, and sociolinguistic contexts creating a more ecologically valid environment where all these factors can be optimally controlled for or manipulated for experimental purposes (e.g., testing the role of the “other” language cross-linguistically by holding Turkish constant). Also, policies and practices toward the Turkish community and language across Europe and even within the same country differ from one another in very meaningful ways providing important opportunities to study the sociolinguistic and pedagogical aspects of home language development and maintenance.

Above and beyond its size and the opportunities it creates for studying various topics, Turkish also serves to be an important source for the formal linguistic study of language change and cross-linguistic influence. It differs typologically from many other immigrant languages and the majority societal Western European ones it finds itself in contact with. Turkish is a very robust SOV language and a highly inflected, agglutinative one where each morpheme denotes a single grammatical function (Kornfilt, 1997). While in Turkish there is a reliably consistent and transparent one-to-one mapping between morphological forms and their meanings, in most Western European languages, which have fusional morphology, there is a tendency for morphology to be polyfunctional. The relative transparency of Turkish might ease its maintenance and cross-generational transmission. However, its very different overall structure as a head-final (left-branching) agglutinative language could either help or hinder. On the one hand, being apparently so different from Indo-European Western languages could further serve to highlight the straightforward form-to-function mappings of Turkish (especially when certain morphology is shared across languages such as Case in German) or, alternatively, further obscure them. How the linguistic nature of Turkish interacts with the continuum of diaspora realities of its speakers is of course an empirical question, one that is taken up in several chapters of this volume.

In her analysis of the data from the above-mentioned projects in Germany, Pfaff (1991) highlights the difference between Turkish-dominant and German-dominant children in their use of various grammatical features (lexicon, Case and number marking, modification, anaphora) and notes that “maintenance of spoken Turkish is fostered in those areas with high concentrations of Turks, but that, in the absence

of formal mother-tongue instruction the language is particularly susceptible to the processes of language change both those which derive from internal linguistic pressures (loss of marked forms and structures) and those which result from incorporation of elements from the contact language, German” (p. 101). Referring to the challenges in investigating minority languages under contact situations, Pfaff concludes her paper recommending that “Cross-linguistic and cross-cultural comparisons [...] are essential to the achievement of the larger goal of understanding the interplay of linguistic and social factors in this highly complex field” (1991, p. 125).

In fact, more recent studies in HL bilingualism, paying more attention to environmental factors, have offered supporting evidence for this trend showing the important role that individual differences in exposure to and opportunities for use of home language, and especially access to literacy and formal training in the HL, play in the development and adult HL competence (e.g., Pires & Rothman, 2009; Kupisch & Rothman, 2018; Bayram et al., 2019). At first glance, the terminologies, perspectives, and even the questions motivating individual research agendas might seem to be different between the earlier studies of Turkish as an immigrant language under a language contact approach in the 80s/90s and more contemporary ones under an HL perspective. However, the commonalities and important links are more apparent than not (see Aalberse, Backus, & Muysken, 2019 as a recent effort that brings these two areas together). By the very nature of their context, all HLs, independent of how big or small the number of their speakers might be, are in contact with (at least) one majority societal language. Of course, there are various historical, social and political factors that are in interplay in effecting the relationship the HL communities have with the larger society, thus determining the prestige of and the attitudes toward the HL (e.g., Spanish in Germany vs Turkish in Germany) (Kaastan et al., 2018; Extra & Yağmur, 2010). Not acknowledging and utilizing the intricacies of this specific environment that makes HL bilinguals HL bilinguals would be a missed opportunity for our field, endeavoring to develop models and theories to account for the whole gamut of variation in HL grammars (Kupisch & Rothman, 2018; Polinsky & Scontras, 2020).

In recent years, formal linguistic approaches to HL bilingualism studies have started emphasizing the modeling of the utility of its sociolinguistic contexts, leading to two important and interrelated shifts in the research program. First, there is a call for shifting the focus from HS to non-HS (monolingual, L2) comparisons toward understanding the competency outcomes of HSs in their own right (Rothman, 2009; Pascual y Cabo & Rothman, 2012; Rothman & Treffers-Daller, 2014; Putnam & Sánchez, 2013; Kupisch & Rothman, 2018). Of course, there is great value from the many studies done (and that continue to be done) comparing HL bilinguals to monolinguals, not least for the very interesting and insightful data they provide for larger questions in language acquisition/processing, constraints on language

representation, universal nature and components of language, competing proposals within the formal theory and more (Scontras et al., 2015; Benmamoun et al., 2010, 2013; Polinsky & Scontras, 2020; Lohndal et al., 2019). From this research, we know that HL bilinguals' outcomes are not *random* and that HL grammars obey the rules of natural language, only differing from the expected baseline/standard norms "in pronounced and principled ways" (Polinsky & Scontras, 2020, p. 5). As HL bilingualism studies turn into the next decade, however, it is of equal importance to understand how and why such grammars emerge the way they do, taking into account individual-level differences as factors correlating, if not predicting, individual's HL grammatical outcomes (see e.g., Kupisch & Rothman, 2018; Lohndal et al., 2019; Bayram et al., 2019). This means that studies that sidestep the typical monolingual control group are very welcome, with proper design and controls in place, comparing bilinguals to bilinguals to understand how and why they differ from each other.

The second shift is a methodological one, not unrelated to how the first shift can be achieved. At the same time, this second shift challenges the sufficiency of the existing landscape of experimental methods used in testing HL bilinguals (see, for a discussion, Bayram et al., in press). Traditionally, HL studies have predominantly relied on tried-and-true behavioral grammaticality/acceptability judgment, comprehension and production experiments/tasks used in adult L2 acquisition studies, which is to say methods used with participants who typically have training in the target language (e.g., Silva-Corvalán, 2014; Montrul, 2002, 2011; Pascual y Cabo, 2018; Polinsky, 2008, 2011; Pires & Rothman, 2009; Lohndal & Westergaard, 2016; Lee-Ellis, 2011; Kim, O'Grady & Schwartz, 2018). However, these methods confront in less than ideal ways the specific contexts of HL individuals, creating unnecessary challenges for testing what we seek to test in the first place: native L1 competence obtaining in a non-monolingual setting where colloquial oracy prevails (see for a review, Polinsky, 2018). The same level of homogeneity in meta-linguistic awareness and knowledge we happen to assume and/or observe when testing a typical group of L2 learners (or native-dominant speakers) is difficult, if not impossible, to achieve in a group of HL speakers in any given context. There are potentially huge discrepancies in qualitative and quantitative input experiences to which HL bilinguals are exposed. Most notably, access to formal training in the HL is at least significantly depressed, if existent at all, compared to their experience with the majority language. This means that specific skills/experiences one gains through it (reading, writing, simply being tested in, domains of contextual use, etc.) are not guaranteed and could come to bear of how we test HL bilinguals if we do not consider this. Based on all this and the fact that many HL bilinguals are reluctant to offer definitive judgments on the grammaticality and acceptability of structures in their HL (Polinsky, 2016), Bayram et al. (in press) call for avoiding the

experiments/tasks requiring such knowledge/experience, or adjusting them with the above in mind. More importantly, they advocate employing online methods (e.g., eye-tracking and EEG/ERP) to circumvent the above challenges by capturing more automatic responses, in combination with the traditional methods. In fact, there is an increasing number of HL studies with such online methodologies (e.g., Keating, Jegerski, & VanPatten, 2016; Puig-Mayenco et al., 2018; Jacob, Şafak, Demir, & Kırkıcı, 2019; Arslan, Bastiaanse, & Felser, 2015; Jegerski & Sekerina, 2019; Fuchs, 2019). Many, if not all, of these studies offer evidence showing much more convergent knowledge/representations for areas of grammar comparable HSs had shown significant divergences from baselines in previous studies.

With its sociolinguistic context and typological features, Turkish in its diaspora stands out to be an excellent tool for addressing the above challenges and testing the long-held assumptions moving forward. It allows for controlling key factors across experiments, both linguistic internal and external, to address several questions about how language change/shift and bilingual (first) language competence occur in the ways they do. Following Pfaff's line of recommendation, this volume aims to offer a more unified approach for future studies in Turkish as an HL by bridging what seems to be no more than a terminological difference between the earlier studies of Turkish as an immigrant/community language and more recent ones taking the HL approach across different populations and different language pairings while also promoting the value of Turkish as a tool for the study of bilingualism in the wider context.

With the above in mind, this volume is divided into three thematic sections. *Section I* focuses on lexicon; *Section II* morphosyntax, and finally, *Section III* offers insights from Turkish HL corpora as used in the wild and in the classroom.

In his chapter, Michael Daller tackles probably one of the most widely studied topics in bilingualism studies: vocabulary size. Daller starts by introducing the existing approaches and debates in measuring bilinguals' vocabulary size. He discusses the discrepancy between those that take a deficit approach reporting a size gap between bilinguals and monolinguals when vocabulary size in each language is compared individually and those measuring bilinguals' vocabulary size more holistically. Daller offers a story-telling task data from adolescent Turkish HL speakers in Germany and monolinguals (Turkish and German), which they did in both Turkish and German. The qualitative results show no differences between HL speakers and monolinguals in either of the languages. However, in his quantitative analysis, Daller reports a disadvantage in the Turkish of HSs, especially in accessing the relevant word, but not in German or when the two languages are combined. Daller argues for taking both languages into account while testing bilingual vocabulary size and in doing so calls for using quantitative and qualitative methods together for a more comprehensive understanding.

Similarly, in the following chapter, Jessica Willard and her colleagues look at the HL vocabulary of adolescent heritage speakers of Turkish in Germany. They also tested their participants' nonverbal reasoning and collected background data (e.g., reading activities, language use patterns). Their regression analyses show that nonverbal reasoning and identification with Turkish culture play a significant role in Turkish HL vocabulary development. Willard and her colleagues find it surprising that there was no significant relationship between HL vocabulary and other environmental factors such as the use of Turkish with family and friends or reading Turkish, and ask what motivates vocabulary growth in HL speakers. They also highlight the need for studies bringing together quantitative and qualitative measures to understand better the interplay between HL competence and language environment.

In this section's last chapter, Anika Lloyd-Smith and her colleagues present data from adolescent and adult Turkish HL speakers in Germany in their investigation of vocabulary and morphosyntactic outcomes. They use measures of lexical density and morphosyntactic complexity juxtaposed against each group's individual language background data offering insights on the relationship between individual experience differences and HL development in childhood and outcomes in adulthood. Their results show that different experiences relate to different outcomes in two different HL age groups. For instance, *parental background* was the stronger predictor in the adolescent group, while it was the *current language use* for the adult group, highlighting the importance of the dynamic nature of input and its effects across the lifespan.

The next section, looking at morphosyntax, begins with an online acceptability judgment study by Juliana Goschler and her colleagues investigating the encoding of motion events in adult Turkish HL speakers in Germany and monolingual controls. They manipulate and violate the canonical structure in Turkish by making use of the typological differences between Turkish (verb-framed) and German (satellite-framed). Their results show differences between the two groups only in the degree of acceptability with no obvious pattern for preference or avoidance. The HL group more readily accepted the structures that used a canonical German pattern compared to the monolingual group. They discuss these findings taking a *convergence approach* indicating some type of weakening of a constraint in the HL Turkish because of its contact with the dominant language German.

The following chapter by Elif Krause and her colleagues investigate the potential crosslinguistic effects in the domain of plural marking on noun phrases. They compare the performance of Turkish HL speakers with high and intermediate HL proficiency to that of age-matched monolinguals in an online Reaction Time experiment. The accuracy results show no group differences. High-proficiency HL speakers were as fast as monolinguals and faster than the lower proficiency ones.

Overall, HL speakers showed more sensitivity to those structures that are only available in Turkish compared to those that overlap with German. The authors take all this as an indication for HL speakers having separate systems for their two languages and discuss the processing of competing structures in bilinguals in the MOGUL framework.

The last chapter in this section provides data from child heritage speakers (age 4–7) of Turkish in Sweden. Bohnacker and Karakoç report from an ongoing larger project on multilingualism in the Stockholm area. In their analysis of the use of Turkish relative, adverbial and complement clauses in children’s storytelling narratives, Bohnacker and Karakoç state that on average the Turkish-Swedish child HL speakers outperform their HL speaker peers as reported in other contexts, especially in Germany. However, they also report a wide spectrum of variation in the production of subordination, which they discuss in light of the social and language background data. For instance, relative clause production was higher in children who received a lot of input in Turkish including regular book reading sessions with parents, while in another group, who had only one Turkish L1 parent, nonstandard complement clause forms were used more often.

The final section of the volume starts with an interesting study by Tanja Kupisch and her colleagues investigating how global accent is perceived in an HL context. Kupisch and her colleagues use excerpts from a corpus comprised of interviews with adult HL speakers of Turkish in Turkish, German and English and ask monolingual speakers to judge the HL speech for accentedness (native vs foreign). They discuss their findings juxtaposed against individuals’ language background data including the patterns of use and exposure in Turkish and German. The results show a strong relationship between HL speakers’ use of Turkish and whether they sound native or (foreign) accented in Turkish or German.

In the next chapter, Annette Herkenrath takes a discourse-analytic approach in her qualitative case study of one adult Turkish HL speaker in Germany, who was interviewed in both Turkish and German. The data show interesting characteristics in terms of register (formal vs informal language use), information packaging and structural complexity such as the use of subordinate clauses and noun phrase modifications. Herkenrath explores the structural comparisons between the two languages with an attempt to relate the issues of sociolinguistic vitality and vulnerability in morphosyntax to a language-biographical perspective.

In the final chapter of the volume, Işıl Erduyan examines the use of standard Turkish in a Turkish HL classroom in Germany. Erduyan adopts a microethnographic discourse approach in her analysis of word search sessions occurring between one student and two different teachers. She focuses on changes and adaptations in Turkish words’ meanings as used in contemporary urban settings in Turkey to show how such meanings are negotiated and realized in a Turkish HL

classroom. The results show differences between the two settings which Erduyan discusses with an emphasis on the construction of a transnational scale and how this relates to speaker agency (student vs teacher) in discourse.

As presented above, this volume brings together research on Turkish as an HL from an impressively wide range of research programs (formal theoretical, sociolinguistic, ethnolinguistic, pedagogical), from different age groups (young children versus adolescents versus adults), different datasets (naturalistic versus controlled) and different methodologies (offline production versus online processing and comprehension). We hope that the breadth and the depth of studies presented herein prove to be a valuable resource for researchers, students, professionals interested in Turkish as an HL as well as for HL bilingual individuals and families themselves. More importantly, we hope that the insights gained, the challenges and questions raised in these studies will lead to more research and discoveries in our quest to understanding HL competence/performance, bilingualism and *language* in general.

Funding

Fatih Bayram acknowledges that this edited volume is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 799652.

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PART I

Lexicon

Turkish heritage speakers in Germany

Vocabulary knowledge in German and Turkish

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In the present chapter, first, the migration background of Turkish heritage speakers in Germany will be described. Secondly, the available literature on Turkish heritage speakers with a focus on vocabulary will be discussed. Finally, the results of a recent study on heritage speakers will be presented. The present study supports the findings of previous studies which aim to answer the question whether there is a vocabulary gap in bilinguals, such that bilinguals have smaller vocabularies than monolinguals. A deficit or gap is attested for bilinguals in a number of studies when they are compared with monolingual control groups (for a detailed overview see Thordardottir, 2011). However, this gap seems to be an artefact of the methodology since bilinguals use their two languages in different domains (Grosjean, 1982, 2001, 2015) and almost never develop a vocabulary in both of their languages that is comparable to monolinguals. We therefore need to include both languages in an investigation of a potential bilingual vocabulary gap. However, even when both languages are investigated, a deficit in vocabulary knowledge, especially productive vocabulary is attested in many studies (for a detailed discussion see Daller & Ongun, 2017). Because the literature presents somewhat inconclusive results, in this study, we wanted to test whether or not the productive vocabulary of a bilingual individual group also shows a gap when compared to monolingual controls. The present study is based on picture descriptions of 23 heritage speakers and two control groups for German ($n = 18$) and Turkish ($n = 30$). We take both languages into account to obtain a fine-grained picture of the bilingual proficiency of the heritage speakers in our sample. A vocabulary gap can be identified for Turkish but not for German. When the children's total conceptual vocabulary (Pearson, Fernández, & Oller, 1993) is considered, however, there is no vocabulary gap for this group of bilinguals.

1. Introduction

Although several European countries received Turkish labor migration through agreements with Turkey in the 1960s, the migration to Germany is characteristically different from others given that huge numbers of migrants moved between both countries in both directions. The first recruitment agreement (*Anwerbevereinbarung*) between Turkey and Germany was signed in 1961, but only after a revision of this agreement in 1964 did a substantial number of Turkish migrants come to Germany. Initially the recruitment of Turkish workers was seen as a temporary measure. The mainly male guest workers (*Gastarbeiter*) were expected to work in Germany for a certain period and to go back to their country of origin afterwards. However, this did not happen. It was in the interest of many Turkish work migrants to stay in Germany, but it was also in the interest of the German companies to keep those workers that had been trained on the job and not to replace them with new unskilled immigrants. The economic decline in Germany in the 1970s led to a discontinuation of labor recruitment in 1973. Nevertheless, the Turkish resident population increased after this date due to births and family reunions (for an overview see Daller, 1999; Daller & Treffers-Daller, 2014). If we identify a heritage speaker as somebody who grew up in a linguistic environment where the first language is a minority language (Bayram & Wright, 2018), then the turning point towards heritage speakers in the Turkish migration process lies around 1980 where the number of female immigrants reached almost 40% of the Turkish population in Germany and the situation changed from the single male guest worker to families with a migration background (Daller & Treffers-Daller, 2014). Identifying the number of Turkish heritage speakers in Germany now is not easy since the migration between these countries is a complex issue with migrants moving between the countries in both directions either temporarily or on a permanent basis (see Daller, 1999; Daller, 2005; Daller & Treffers-Daller, 2014). In 2016 around 2.7 million out of 82 million citizens in Germany had a Turkish migration background (Statistisches Bundesamt, 2017). This includes people who moved to Turkey as the first generation and children from mixed couples with only one Turkish parent. Some Turkish heritage speakers in Germany are already 4th generation immigrants, but still use Turkish in their everyday life (Daller & Treffers-Daller, 2014). The nationality of these speakers is not a reliable indicator of their linguistic background as since 1990, the naturalization of foreign nationals has been facilitated and almost 800,000 Turkish nationals obtained German citizenship between 1982 and 2013 (see Daller & Treffers-Daller, 2014). Identifying the number of Turkish heritage speakers in Germany is also complicated by the fact that around 500,000 immigrants from Turkey have Kurdish as their first language (Antwort der Bundesregierung, 2000).

The change of the ratio of female to male Turkish immigrants over time is a clear indication for the change from single male guest workers to Turkish families and thus children who grow up as Turkish heritage speakers in Germany. Figure 1 shows the growth of female immigrants with a Turkish background over time. The number of male immigrants is the reverse picture.

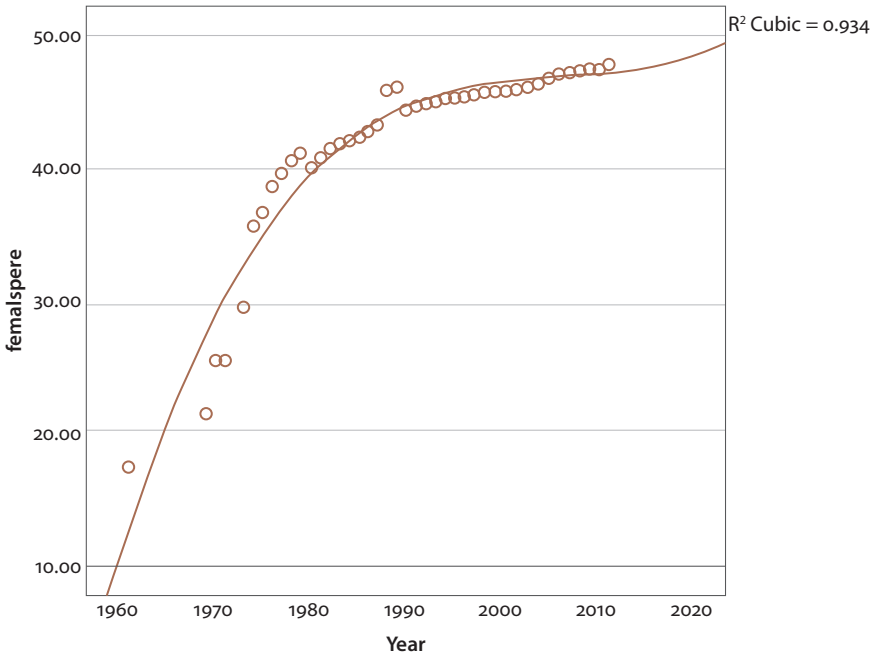


Figure 1. Percentage of female immigrants in the Turkish population in Germany (Daller & Treffers-Daller, 2014, p. 190)

This development is also reflected in the fact that the number of Turkish nationals under the age of 18 rose constantly until around 1980 where it reached a certain plateau (Figure 2).

Figure 1 and Figure 2 illustrate that since around 1980 a considerable number of bilingual speakers with a Turkish background grew up as heritage speakers in Germany. As mentioned earlier the exact number of these speakers is difficult to estimate, but it is clear that there are several hundred thousand heritage speakers. If we assume that those who were 18 years in 1980 are now parents or grandparents, the conclusion can be drawn that the present generation is already the third or in some cases the fourth generation of Turkish immigrants in Germany.

The aim of the present study is to measure the bilingual vocabulary of these heritage speakers in both languages. We give an overview on previous studies and

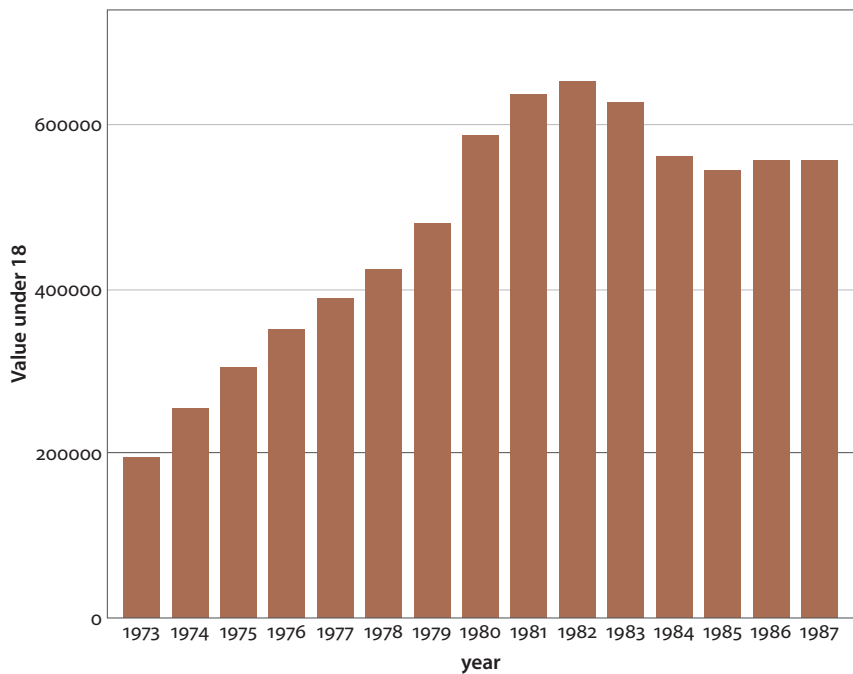


Figure 2. Turkish nationals in Germany under the age of 18
(Daller & Treffers-Daller 2014, p. 192)

investigate whether there is a “bilingual gap” in vocabulary knowledge of heritage speakers when compared with monolingual peers and whether such a “gap” actually exists when both languages are taken into account. In the present study we present data from a study with 23 heritage speakers in Germany (age range 11–13), who attended a *Hauptschule* (lower secondary education in Germany).¹ The participants described a picture story “Frog, where are you?” (Meyer, 1969) in Turkish and German. Their descriptions were then compared with a monolingual control group in Turkey ($n = 30$) from a similar age and educational level and a monolingual control group ($n = 18$) from a *Hauptschule* in Germany. The results indicate that when both vocabularies of the heritage speakers are taken into account no “bilingual gap” exists. However, the vocabulary in Turkish is smaller than that of the control group and more general words are used, such as şey ‘thing’, where the more specific words seems to be missing. The methodology and the findings are presented in Chapter 3 and 4.

1. Terminology according to the International Standard Classification of Education (UNESCO)

2. Previous studies the language proficiency of Turkish heritage speakers

Most authors studying heritage languages agree that there are differences between the language of heritage speakers and the language spoken in the home country of the heritage speakers. Whether this difference is a deficit or not is very much under discussion: Montrul (2008, 2015) and Dominguez, Hicks, & Slabakova (2019), for example, assume that differences in the grammar may result from “incomplete acquisition” of the heritage language. Starting with Rothman (2007) and Pires & Rothman (2009) researchers have pointed out that the use of this term is not appropriate. They point out some of the grammatical structures under investigation may not be sufficiently represented in the input provided to heritage speakers in a qualitatively similar way to monolinguals for any number of reasons (e.g., difference in literacy and other exposure to the standard, attrition in the previous generations of speakers who are input providers, see Bayram et al., 2019a, b; Kupisch & Rothman, 2018). Acquiring these to a benchmark standard of monolingualism becomes, therefore, not an option and constitutes a comparative fallacy of sorts. For this reason, Pires and Rothman (2009) propose the term “missing input competence divergence” and Kupisch and Rothman (2018) “divergent acquisition” to describe the characteristics of heritage speakers’ grammars.

A careful comparison of heritage speakers with returnees, that is heritage speakers who returned to the country where their parents were born, can sometimes shed new light on the source of grammatical structures and the specific competence of heritage speakers. An example is Treffers-Daller, Daller, Furman, & Rothman (2016). They investigated differences in the grammatical system of heritage speakers who live in Germany ($n = 49$), heritage speakers who returned to Turkey (returnees; $n = 48$) and monolingual speakers in Turkey ($n = 68$). One of the questions of this study was whether the grammatical structures present in the heritage language change in the direction of the monolingual norm after return to the home country. The phenomenon that Treffers-Daller et al. (2016) investigate is the use of the light verb *-yap* ‘to do/make’ that many Turkish heritage speakers in Europe use instead of more specific verbs. Heritage speakers more often use *fotoğraf yapmak* ‘to do/make a picture’, for example, instead of *fotoğraf çekmek* ‘to take a picture’. The study also shows that Turkish heritage speakers in Germany overuse *yap-* instead of *et-* ‘do/make’ in complex predicates such as *kavga yap-* ‘to fight’, where speakers of Turkish in Turkey prefer *kavga et-* ‘to fight’. Adult speakers who had been exposed to the monolingual environment after return for more than seven years, however, were no longer distinguishable from monolingual speakers and therefore had overcome the challenge of acquiring collocational vocabulary knowledge as used in Turkey in late adolescence. The authors argue that it is possible for heritage speakers to converge towards the monolingual norm even after

puberty, which is in clear contrast with second language learners who normally do not reach target language norms after a certain age.

Studies that investigate the vocabulary knowledge of heritage speakers in both languages are very scarce. It is especially difficult to get insights into the Turkish vocabulary knowledge of heritage speakers since they use it in their everyday life, but this use cannot be measured against any norms because they do not exist. However, a unique situation arises when these heritage speakers return to their home country and are suddenly confronted with monolingual norms, e.g. at schools or universities. Many returnees say that their Turkish vocabulary is not sufficient for schools or universities in Turkey and that this is the reason for problems in their academic career. A period of two years is often mentioned before they feel comfortable with their Turkish vocabulary knowledge (Daller & Yıldız, 1995). Studies that focus on the vocabulary sizes in both languages do not exist. There are, however, studies that use measures (the C-test format) that can be seen as a proxy for general language proficiency (Eckes & Grotjahn, 2006) and vocabulary knowledge. The studies discussed below focus on both languages of the heritage speakers, which is not always the case in other studies, but necessary to cover the unique concept of bilingual proficiency.

A study that had been carried out with 50 heritage speakers (returnees) and 23 learners of German as a foreign language at a high school in Istanbul (Daller & Yıldız, 1995) showed that the C-test results in Turkish and German of both groups are almost an exact mirror image of each other. The heritage speakers were much better in German than the foreign language learners, which is the expected outcome. For Turkish, however, the heritage speakers had statistically significant lower scores than their monolingual class mates even 1.6 years after return on average. A similar study carried out by the same authors (Daller & Yıldız, 1995) with returnee students who had been back in Turkey for more than eight years did not reveal any significant differences with the monolingual peers. Somewhere between 1.6 to eight years of exposure to the monolingual environment the students' performance is within the range of that of monolinguals' performance. Again, this is an indication that heritage speakers have the potential to perform within the range found among monolinguals, which distinguishes them clearly from foreign language learners. One has to bear in mind that although there was no significant difference between the mean scores of the heritage and monolingual speakers after 8 years, the variation (standard deviation) in the scores of the heritage speakers was much larger than that of the monolingual group. This means that not all heritage speakers reach high levels of performance (for a detailed overview see Daller, 1999). A similar picture was found in a study with returned heritage speakers and monolinguals in 2003 (Daller, van Hout, & Treffers-Daller, 2003), where C-tests in Turkish and German had been used. Again, the variation in the scores of the heritage speakers was much larger than the variation among monolingual speakers.

Another study using Turkish-German bilinguals who just returned to Turkey is Daller, Yıldız, De Jong, Kan, & Başbağı (2011). They investigate a group of 60 bilinguals (average age 16.58) who had just been back to Turkey for about one year. The control group in this study consists of 55 monolingual Turkish secondary school students (average age 15.35), who learned German as an L2, and never left Turkey apart from for holidays. Both groups were students at a college where parts of the curriculum are taught in German (the so-called Anadolu Lisesi). Again, a C-test was used in both languages as a proxy for general language proficiency and vocabulary knowledge. In line with the expectations the heritage speakers show higher scores in German but also lower scores in Turkish when compared to the control group. The results are presented in Figure 3 and Figure 4.

Both differences are statistically significant (German: $t = 13.342$, $df = 90.519$ $p < .001$, equal variance not assumed; for Turkish: $t = 15.223$, $df = 114$, $p < .001$, equal variance assumed).

Daller et al. (2011) also analyzed picture descriptions produced by both groups. They found that the control group clearly produced more words in Turkish than in German, which is an indication that Turkish is their dominant language. For the heritage speakers the results are the opposite. German is still their dominant language one year after arrival in a Turkish monolingual environment. They produce significantly longer descriptions in German than in Turkish.

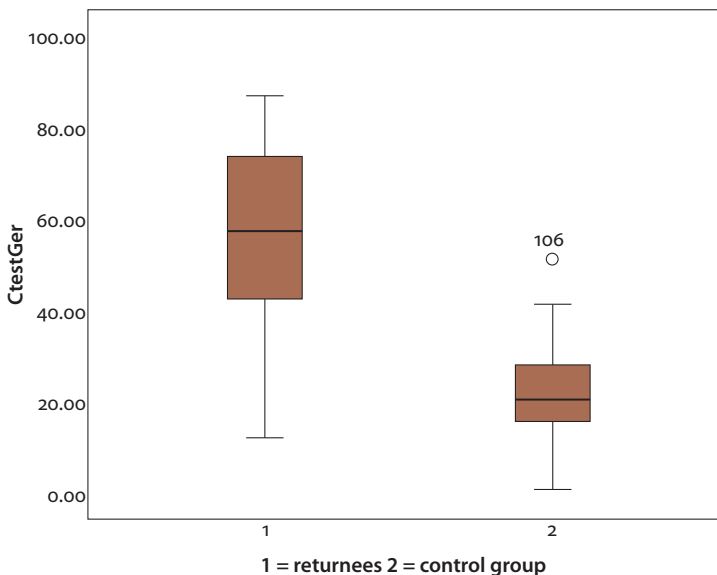


Figure 3. C-test scores for German

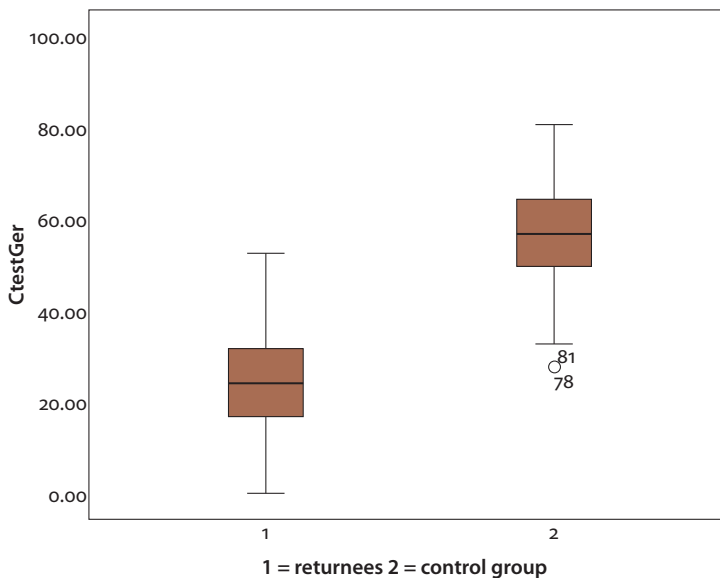


Figure 4. C-test scores for Turkish, Source: Daller et al. (2011)

A recent study which focuses on the vocabulary of Turkish heritage speakers is Daller & Ongun (2017). The bilinguals in this study are Turkish-English bilinguals who grew up in the UK. The authors stress all parents of the 100 successive bilingual children (age 7–11) have a middle-class background, and at least one parent has a university degree. The socioeconomic status of the parents and especially the educational level of the mother are an important factor for the development of literacy and vocabulary in the heritage language (Willard et al., 2015). Therefore, the findings of Daller and Ongun (2017) might not be generalizable to bilingual settings where the parents are from a working-class background. However, the principal question about the relation between L1 and L2 vocabulary is similar to that in other studies. The participants in Daller and Ongun’s study grew up from birth in a typical heritage environment where English is the dominant language and input in Turkish comes only from their parents or friends. Daller and Ongun (2017) measure the receptive and the productive vocabulary of the heritage speakers in both languages. The receptive vocabulary is measured with a yes-no format, where the participants have to indicate whether or not they know a certain word. This format (X-lex, see Meara & Milton, 2003) can be used with any language as long as frequency lists for the vocabulary of these languages are available. In order to avoid guessing or even cheating, pseudo-words are included and a candidate is marked down if they say that they know a pseudo-word. The maximal possible score with this test format is 5,000. Figure 5 shows the development of the receptive vocabulary of the heritage speakers.

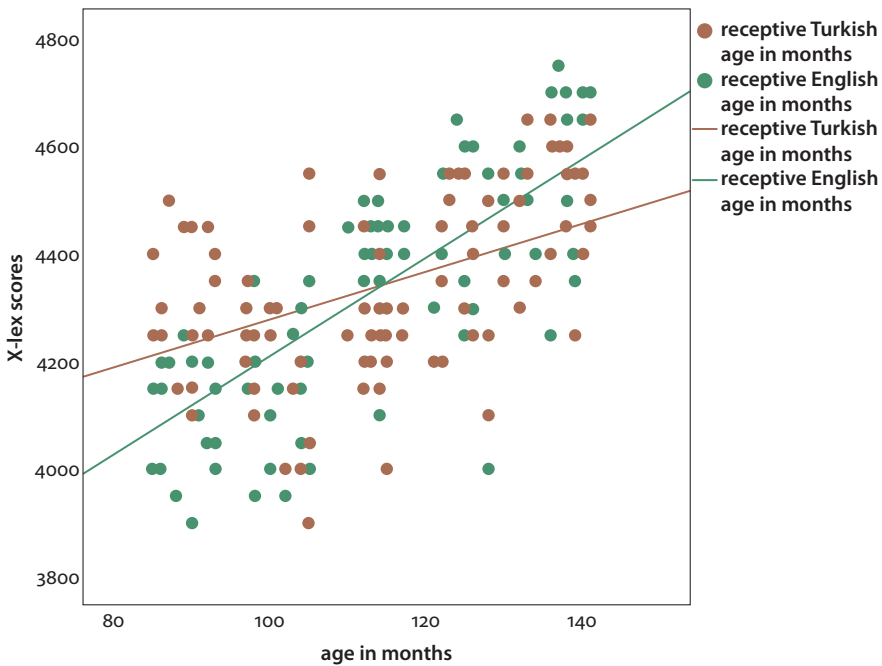


Figure 5. Receptive vocabulary in Turkish and English (Daller & Ongun, 2017, p. 8)

It is clear that younger participants score higher in Turkish at the beginning and increase their vocabulary size with age. At around the age of around 9.5 years (115 months) English takes over, probably because it is the language of schooling. However, both languages increase steadily and the correlation between the two languages is strong and highly significant ($r = .611, p < .001$). Daller and Ongun (2017) also compare the vocabulary sizes of the heritage speakers with an English and a Turkish monolingual group of matched peers ($n = 25$ for each group). It is difficult to compare receptive vocabulary knowledge between different languages because of only partial semantic overlap of the items and different frequencies of comparable vocabulary in different words. Therefore, the comparison focuses on productive vocabulary as measured with a verbal fluency test which is widely used in psychological assessment but also in linguistic research on vocabulary knowledge and lexical access (for an overview see Daller & Ongun, 2017, p. 7). The participants had to name all words that they knew from four categories (clothing, colors, food and body parts). For each category they had two minutes. To avoid priming effects there was a break of two weeks between the recordings in English and Turkish. The results are shown in Figure 6 and 7.

It is clear that the bilingual heritage speakers score lower in both languages when compared with matched monolingual peers. The differences are statistically

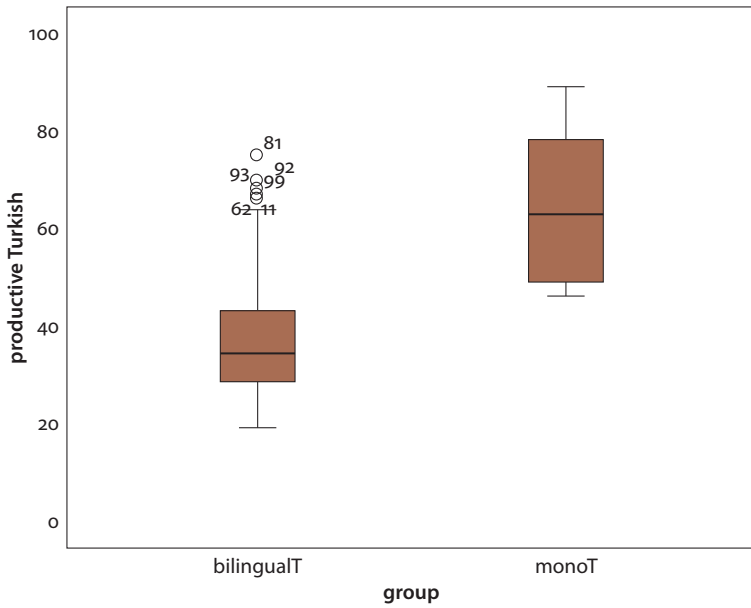


Figure 6. Productive vocabulary in Turkish for heritage speakers and Turkish monolinguals

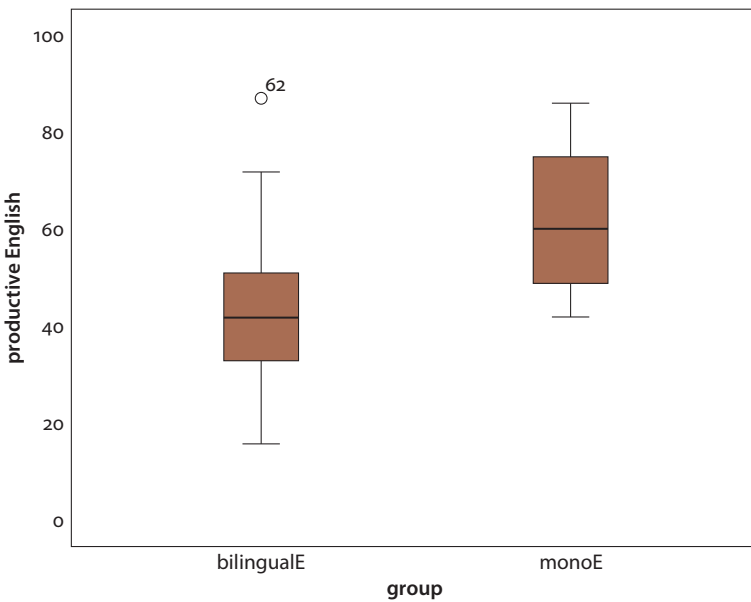


Figure 7. Productive vocabulary in English for heritage speakers and English monolinguals

significant for Turkish ($t = 9.22$, $df = 32.670$, $p < .001$; equal variance not assumed) and English ($t = 6.484$, $df = 122$, $p < .001$).

This ‘bilingual gap’ is identified in many studies (Bialystok, Craik, Green, & Gollan, 2009; Bialystok & Feng, 2009; Bialystok, Luk, Peets, & Yang, 2010; for a detailed overview see Daller & Ongun, 2017). However, a more appropriate approach for bilinguals is the measurement of the total conceptual vocabulary (TCV) as proposed by Swain (1972) and Pearson, Fernández and Oller (1993). In this approach the vocabulary of a bilingual in both languages is taken together and credit is given if the participant knows a word either in L1 or L2. Words that are known in both languages are counted as one known concept as well as words that are known only in one language regardless which language it is. The TCV is smaller than the vocabulary of L1 and L2 taken together because there is overlap in vocabulary knowledge, but it is larger than the vocabulary in each single vocabulary. For monolinguals the total conceptual vocabulary is equal to the vocabulary in their language. Figure 8 shows the total conceptual vocabulary of the heritage speakers in Daller and Ongun’s study compared with the two monolingual control groups.

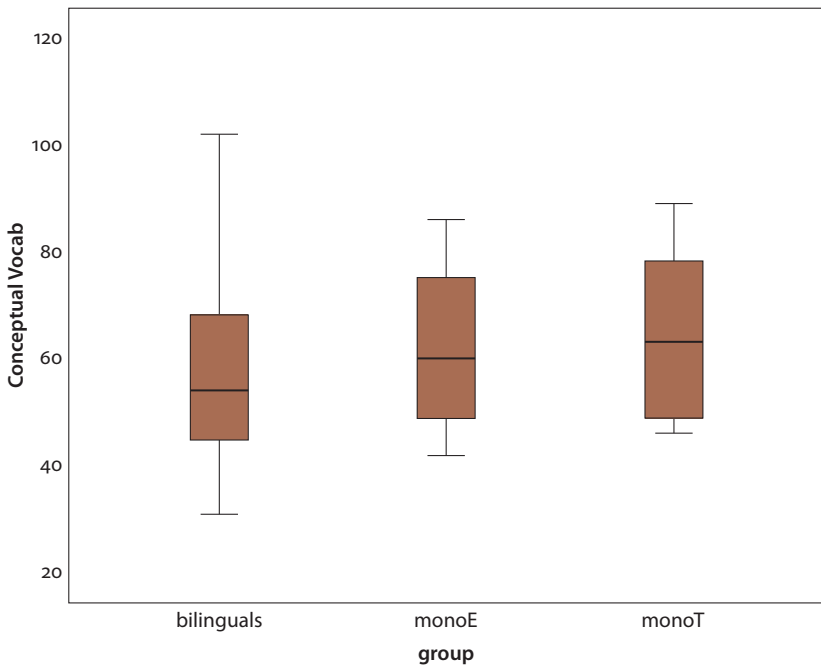


Figure 8. Total conceptual vocabulary of the bilingual heritage speakers and the two monolingual control groups

The differences between the groups are not significant. Daller and Ongun (2017) show that for at least their sample a bilingual disadvantage with regard to vocabulary does not exist when the approach of total conceptual vocabulary is used. Smaller vocabulary scores for bilingual heritage speakers are only an artefact of the methodological approach if each language is compared separately with a monolingual control group, but not when the two languages are taken together.

As a summary of the literature we come to the following conclusions: heritage speakers from Germany are still clearly dominant in German even one year after returning to Turkey (Daller et al. 2011; see Figures 4 and 5). The dominant language of the environment takes over from the heritage language with respect to receptive vocabulary knowledge when the children are around nine years old (for Turkish children in the UK; see Figure 5). Daller and Ongun (2017) also show that there is a “vocabulary gap” when heritage speakers are compared with monolingual control groups, but that there is no vocabulary gap when the Total Conceptual Vocabulary is considered (see Figures 6–8).

3. Hypotheses

In the present study we aim to find out whether a vocabulary gap can be identified when we compare a whole group of speakers and not individuals and whether this gap disappears similar to the TCV approach when we make group comparisons. Based on the literature summary above, we expect that:

1. Heritage speakers in Germany will be dominant in German
2. A vocabulary gap will be apparent in Turkish when compared to monolingual controls
3. A potential vocabulary gap in German will be smaller than in Turkish
4. A vocabulary gap is not apparent when both languages are taken into account in a group comparison

4. Methodology

4.1 Participants

The research group in the present study consists of 23 heritage speakers of Turkish in the age range of 11–13. Two speakers came to Germany at the age of 5, and 21 speakers were born there. All attended German schools at the time of data collection. The control groups consist of peer matched monolinguals from Turkey

($n = 30$) and Germany ($n = 18$). All participants attended a *Hauptschule* (basic secondary school) or a similar school in Turkey, and the parents were from a working-class background.

4.2 Measures

The research group described a text free picture story (“Frog, where are you?” Mayer, 1969) in Turkish and German. There was a break of two weeks between the recordings in both languages to avoid priming effects. The data collection in Turkish was carried out by a speaker of Turkish and the instructions were given in that language. The data collection in German was carried out by a speaker of German. The control groups described the same story. The picture stories were analyzed according to the total number of words used in both languages. We also analyzed selected keywords in the picture description (see Table 2). For the key words, sometimes the total number of words used is larger than the sample because some participants use two different words for one description (e.g. *Bienennest* ‘bee nest’ and *Bienenstock* ‘beehive’ in the same description). In this case we counted both words. If a participant uses the same word more than once, we counted this only once since this does not reveal additional lexical knowledge.

A further measure that we used is the index “D”, which is an index of lexical richness developed by Malvern and Richards (see Malvern, Richards, Chipere, & Durán, 2004). Many measures of lexical richness are dependent on text length as speakers/writers run out of new words the longer they speak/write and need to repeat words already used increasingly. Therefore, the ratio of new words to all words (type-token ratio, TTR) decreases with increasing text length, which makes it difficult to compare text of different lengths. The falling TTR curve with increasing text length can be modelled by a curve. The measure “D” is based on the steepness of this falling curve. Speakers who repeat their words more often show a steeper falling curve than speakers who use a more varied vocabulary. The higher value for “D” is therefore an indication of a larger vocabulary (for an overview on the measurement of lexical richness see: Daller, Milton, & Treffers-Daller, 2007).²

2. It is of course possible to repeat words more often for stylistic purposes, which could result in a low value for “D”. This is, however, not normally done in an exam setting where participants know that their texts are evaluated in some form.

4.3 Procedure

The data collection for the heritage speakers and for the German control group was carried out in Germany at a school. To avoid priming effects there was a break of two weeks between the recordings in Turkish and German. The data collection for the Turkish monolinguals was carried out at a school in Turkey and for German at a school in Germany. All schools were a *Hauptschule* in Germany or a school of a similar level in Turkey. The interviewer was a speaker of the language that was recorded and the instructions were given in that language. The participants were asked to describe the story to somebody who could not see the story.

5. Results

A first indication of vocabulary size is the number of words that can be produced in a given time. Therefore, we analyzed a sub-group of bilingual heritage speakers that produced texts in both languages ($n = 10$).³ The results show that the bilinguals use slightly shorter texts in Turkish than in German (mean text length in German: 761.3 token, Std.D. = 205.6; mean text length in Turkish: 629.5, Std.D. = 230.7). However, this relatively small difference does not necessarily mean that the Turkish of this group is weaker as Turkish has a tendency to use fewer words when conveying the same content due to the agglutinating structure of the language. Daller et al. (2011) estimate that any translation from German to Turkish will result in 10% fewer words in the Turkish text. Apart from this argument the difference between the German and Turkish text lengths for the subgroup of heritage speakers is not significant (Wilcoxon Signed Rank Test: $p = .093$). This comparison does therefore not reveal a dominant language of the bilinguals. A qualitative analysis, however, shows clear differences between the picture descriptions in both languages. Whereas the German descriptions are told with virtually no hesitation markers, there are many hesitations, false starts and apparent word finding problems in Turkish as can be seen from the following examples:

- (1) *co- küçük çocuk*
chi(ld) small child
'small child'
- (2) *Cağ- bağıriyor bağara bağirmek istiyor*
ca(ll) screams scr(...) scream want
'he wanted to scream'

3. For technical reasons only for this sub-group full transcripts are available in both languages.

In addition, the bilingual group switches between languages, apparently when word finding problems occur as illustrated in Example (3).

- (3) *o zaman suya suya suya springen yapti*
 then into the water into the water into the water jump did
 ‘then he jumped into the water’

Example (3) clearly shows a word finding problem in Turkish as after several repetitions of *into the water* only the German word *springen* ‘jump’ is used where the Turkish word *atlamak* ‘jump’ would have been expected. These examples can be seen as an indication of problems with vocabulary knowledge or word access, and a purely quantitative analysis cannot capture the differences between the two groups.

We also compared the Turkish picture stories of the heritage speakers with those of a peer-matched monolingual control group (same age, same educational level). We used the total number of words and the measure “D” for this analysis. The results are shown in Table 1.

Table 1. Text length and “D”-value for the picture descriptions in Turkish

Group	Text length (mean)	St.D.	“D”	St.D.
Heritage ($n = 10$)	629.5	230.682	78.830	18.8024
Monolinguals ($n = 14$)*	264.79	79.117	67.164	19.3626

* Only for a sub-group the full transcription of the stories was available for technical reasons.

Interestingly, the bilingual group produces much longer descriptions than the monolingual group, which would indicate that they are more fluent in Turkish. The difference between the two groups in word length is significant (Mann-Whitney U Test; $p < .001$). However, the D-values do not differ significantly, which indicates that based on a qualitative analysis their displayed lexical richness is not significantly different. The longer texts in Turkish for the heritage speakers are probably due to the many repetitions and false starts (see examples above) which will not lead to a higher value for “D” as there are many repetitions.

A more detailed analysis can be obtained when keywords in the frog story are analyzed. Based on a qualitative analysis nine keywords were identified with potential differences between the heritage speakers and monolingual speakers. In total, 30 peer-matched monolingual speakers of Turkish and 18 of German were used and compared to the data from 23 heritage speakers. The number of instances where a certain word is used is sometimes larger than the sample size or smaller because some speakers used a word more than once in the description of a picture and others skipped the description of the relevant parts (key-words) of certain pictures. It should be noted that this analysis is different from the Total Conceptual Vocabulary approach, as the TCV is about the vocabulary of an individual. Here we focus on

the vocabulary used by the group as a whole. However, if a certain word, such as *hayvan* ‘animal’ is used by most members of a group instead of the more precise *geyik* ‘deer’, conclusions can be drawn about the vocabulary of the individuals.

Table 2 shows the use of these keywords by the heritage speakers in both languages and the monolingual controls.

Table 2. Keywords used by bilingual heritage speakers and monolingual control groups

Keyword	Turkish mono (n = 30)	Heritage speakers (n = 23)		German mono (n = 18)
		Turkish	German	
Call	bağırarak (18)	bağırarak (yell, shout) (27) çağırarak (shout) (17) seslenmek (call) (1)	Rufen (call) (27) Schreien (shout) (17)	Suchen (look for) (7) Rufen (call) (9) Gucken (look) (9) Schreien nach (shout after) (1)
Deer	Geyik (23) Hayvan (animal, 3)	Hayvan (animal) (16) Inek (cow) (1) At (horse) (1)	Reh (deer) (16) Hirsch (deer) (5) Elch (moose/ elk)(4) Stier (bull) (1)	Reh (deer) (10) Elch (Moose/ Elk) (3) Rentier (reindeer) (1), Hirsch (deer) (9)
(Tree) trunk	kütük (trunk) (11)	ağaç (tree) (20) Şey (thing) (1) ^a	(Baum)stamm (trunk) (19) Baum (tree) (2) Ast (branch)(2)	Baumstamm (trunk) (14) Baumstumpf (tree stump) (4)
climb	Çıkmak (21) Tırmanmak (6)	Çıkmak (climb, 11) Binmek (mount) (1) Gidiyor (go) (2)	Klettern (climb, 10) gehen (go, 5), steigen (mount) (3) springen (jump) (1) schauen (look) (3)	Klettern (climb) (15), Gehen (go) (1) Steigen (climb) (1)
Beehive	Arı covanı (beehive) (15)	Ari evi (bee house) (19)	Bienennest (bee nest) (13) Bienenhaus (bee house) (6) Bienenstock (bee hive) (4)	Bienenstock (bee hive) (11) Bienenest (bee nest) (11) Others (1) ^b
Mole	Köstebek (mole) (19)	Hayvan (animal) (13) Hamster (1) Fare (mouse) (2) Şey (thing) (1)	Maulwurf (mole) (15) Hamster (6) Maus (mouse) (3) Hase (rabbit) (1) Eichhörnchen (squirrel) (1) Stinktief (skunk) (1) Tier (animal) (3)	Hamster (hamster) (2) Maulwurf (mole) (4) Nagetier (rodent) (1) Frettchen (ferret) (1) Maus (mouse) (2) Meerscheinchen (guinea pig) (1) Erdmännchen (meerkat) (1) Tier(4) (animal)

Table 2. (continued)

Keyword	Turkish mono (n = 30)	Heritage speakers (n = 23)		German mono (n = 18)
		Turkish	German	
(Bee)	kovalamak	ışırnak (bite) (8)	stechen (sting) 13	verfolgen (chase) (3)
chase	(chase) (20)	sokmak (sting) (6)	beißen (bite) (1)	jagen (hunt) (2)
(Bee)		batmak (sting) (2)		stechen (2)
sting		igne yapmak ('to do sting') ^c (1)		hinterher fliegen (fly afterwards) (1)
Jar	Kavanoz (jar, 16)	Şişe (bottle, 5) Tas (bowl) (1) Bardak (cup) (2) Kavanoz (jar) (5) ^d	Glas 18	Glas (15) Others (2) ^e
Frog	Kurbağa (27)	Kurbağa (20)	Frosch (21)	Frosch (18)

a. *Şey* means 'thing', and its use by the heritage speakers can be seen as the lack of knowledge (or the lack of access) of the appropriate word.

b. *Bienen-bau* 'bee building' (1), *Bienenkorb* 'bee basket' (1), *bienenwabe* 'honeycomb' (1)

c. Actually, this means to 'give an injection' or to 'inject'. It can be seen as an example for the overuse of *yap-* 'to do' by heritage speakers (see Section 2) and/or a word findings problem.

d. *küvez*, *kova* 'bucket', *vitrin* 'showcase', *vazo* 'vase' (each 1 x)

e. *Topf* 'pot' (1), *Dose* 'can' (1)

For Turkish there is a tendency that the monolingual speakers use mainly specific words in their descriptions, e.g. *kavanoz* 'jar', whereas the heritage speakers use more general words that are not entirely appropriate, e.g. *şişe* "bottle" to describe the same picture. Another example is the word *Köstebek* 'mole' which is used by all Turkish monolingual speakers, but the heritage speakers either skip the description of this part of the picture or use the more general word animal. None of the heritage speakers uses the specific word *arı kovanı* 'beehive', but they use *arı evi* 'bee house' instead. This is an existing compound, but *arı kovanı* is more specific. The heritage speakers have a tendency to use more general words in Turkish, which is an indication that at least some of them do not know the specific words or do not have access to them during the task.

For German the situation is different. Here the heritage speakers use many specific words similar to the monolingual group, such as *Bienstock* 'beehive' or *Maulwurf* 'mole'. This raises the question whether the heritage speakers as a group know more specific words in German but not in Turkish. As we do not analyze individuals, we cannot say that the heritage speakers have a total conceptual vocabulary that is similar to monolinguals. However, if specific words are known by the group in at least one language, conclusions can be drawn about language dominance, and about vocabulary knowledge in general. In Table 3 we compare the use of specific keywords by heritage speakers when compared with the monolingual control groups. If several words were used, we counted the most frequent use (mode).

Table 3. Keywords used by heritage and by monolingual speakers as a group (No = no speaker of that group used the keyword)

Keyword used by monolingual groups	Same keyword used by heritage speakers and monolinguals in Turkish	Same keyword used by heritage speakers and monolinguals in German
Call	Yes	Yes
Deer	No	Yes
Trunk	No	Yes
Climb	Yes	Yes
Beehive	No	No
Mole	No	Yes
Chase/sting	Yes	Yes
Jar	No	Yes
Frog	Yes	Yes

Table 3 shows that the heritage speakers use specific keywords as the German monolingual group. For Turkish the situation is different. If they had been tested in Turkish only, a vocabulary gap would have been attested. This is, however, not true if we look at both languages. As we do not look at individuals in this analysis, we cannot prove that the individuals have a total conceptual vocabulary that is similar to the monolinguals. However, Table 3 shows that there is at least an indication that the group does not lack behind the monolingual speakers in German.

6. Discussion and conclusion

Although the quantitative analysis (see Table 1) does not confirm there is a difference between the vocabulary knowledge of the heritage speakers and Turkish monolinguals, there seem to be clear word finding problems in Turkish as is shown in the more fine-grained qualitative analysis illustrated in examples 1–3. This is also confirmed by the analysis of the keywords, where clearly fewer Turkish key words are known when compared to the Turkish monolingual control group.

The analysis of keywords shows that more key words are known in German than in Turkish and that German is the stronger language of the heritage speakers which supports hypothesis 1, which states that German is the dominant language for the heritage speakers. This is in line with previous research on Turkish returnees from Germany, where even after one year or longer in the Turkish monolingual environment German is still the dominant language of this group. According to Daller and Yıldız (1995) it takes between 1.6 to 8 years in a monolingual environment before the vocabulary gap in Turkish is closed. A finding which also is plausible from the present study. The results of the current study provide support

for hypothesis 2, which states that there is a vocabulary gap in Turkish. In German this gap does only exist marginally when compared with a peer matched control group. Hypothesis 3, which states that there is also a vocabulary gap in German, albeit smaller than in Turkish, is therefore not confirmed by the findings. When both languages are taken together no vocabulary gap can be found for the group of the heritage speakers, which confirms hypothesis 4. This might be an indication that also for individual speakers there is no vocabulary gap if both languages are taken together which is an indication that the TCV of the heritage speakers is similar to monolinguals, but it is beyond the scope of this study to investigate this in detail.

The heritage speakers do not seem to have a disadvantage in German with regard to vocabulary. Since the participants receive schooling in German only, a gap in their Turkish vocabulary will not be apparent at school and will not be a disadvantage for them. The vocabulary gap in Turkish would only become apparent if they moved to a Turkish school or university by returning back to Turkey, where clear additional support for vocabulary in Turkish would be necessary for academic success. One outcome of the present study is that there is no vocabulary deficit for the heritage speakers in Germany but that a potential return to Turkey would pose a challenge with regard to vocabulary. However, previous studies on vocabulary (Daller & Yıldız, 1995) and collocational knowledge (Treffers-Daller et al., 2016) show that Turkish heritage speakers' performance can be within the range of that of monolinguals, particularly if the heritage speakers return to a monolingual Turkish environment, albeit after a certain time of exposure to monolingual Turkish. Our findings clearly show that a combination of quantitative and qualitative methods is necessary to draw a fine-grained picture of bilingual proficiency. We also strongly argue for taking both languages of the participants into account. One limitation of our study is the small sample sizes, which is due to logistic reasons. Further studies with larger sample sizes are needed.

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Correlates of Turkish vocabulary in adolescent Turkish heritage language learners in Germany

An explorative study

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Little is known about resources for adolescent heritage language learners' vocabulary. In a sample of adolescents ($n = 78$), we exploratively examined correlates of seventh-graders' Turkish vocabulary as potential resources. Drawing on what is known about young heritage language learners and monolingual adolescent vocabulary learners, we considered a number of adolescent characteristics such as nonverbal reasoning (analogies subtest of the SON-R, Snijders, Tellegen, & Laros, 2005) and their self-reported identification with Turkish culture (Berry et al., 1993; Phinney & Ong, 2007). We also considered adolescents' self-reports on reading activities, language use in the family and among friends, the percentage of Turkish speakers among their friends, as well as whether they attended Turkish classes. Turkish receptive vocabulary was assessed with an adapted research version modelled on the PPVT-4 (Dunn & Dunn, 2007; Glück, 2009). A set of regression analyses indicated that adolescent characteristics such as nonverbal reasoning skills and identification with the Turkish culture explained the most variance in Turkish vocabulary. This suggests that being motivated to maintain the heritage language may be major resources for adolescents' vocabulary. However, it raises the question from what sources adolescents are receiving input in their heritage language. We discuss various reasons for why the other factors such as language use in the family and reading activities may not have shown significant connections to Turkish vocabulary and provide impulses for further research.

1. Introduction

Does adolescence signify the demise of heritage language vocabulary? According to Montrul (2016), school-age children and adolescents may stop learning new words or even lose access to already learned words in the heritage language. This stagnation or even erosion of heritage language vocabulary is posited to begin once heritage language learners enter schooling in the societal language. From the US, there is indeed evidence showing that vocabulary growth levels off during school-age (e.g., Mancilla-Martinez & Lesaux, 2011; Uccelli & Pérez, 2007). However, such trajectories may not be inevitable. From a bioecological viewpoint, the interplay of a variety of individual, family, school, and broader societal factors may determine whether adolescents continue to learn new words in the heritage language or even make an effort to do so, or whether they shift their focus increasingly to the language of the majority society. Accordingly, adolescents around the world may fare very differently in their heritage language vocabulary development. In contrast to the findings from the US, there is first evidence that Turkish heritage language learners' vocabularies continue to grow during school age and into early preadolescence (Willard, Hammer, Bitetti, Czyk, & Leyendecker, 2019). But how can adolescent Turkish heritage language learners expand their heritage language lexicon? Where and how can they pick up new words? What drives heritage language vocabulary growth after early childhood? Most research on heritage language learners focuses on either children up to the age of six or young adults (Montrul, 2016). What happens between these two periods is less well explored. This chapter takes a first look at possible resources by exploring the correlates of adolescents' Turkish heritage language vocabulary. Thereby, it takes a first step towards understanding how to provide adequate support to those adolescents around the world who wish to develop their heritage language lexicon.

First, we will briefly review what is known about how young heritage language learners and monolingual adolescents expand their lexicons. For the former, there is a growing body of research on environmental factors (e.g., Hoff & Core, 2013). For the latter, the importance of reading has been pointed out (Berman, 2008; Nippold, 2006; Nippold, Duthie, & Larsen, 2005). Subsequently, we aim to provide a sketch of the situation of adolescent Turkish heritage language learners in Germany. From this brief review, we derive hypotheses on potential resources for vocabulary development in adolescent Turkish heritage language learners.

1.1 Young heritage language learners' vocabulary development

Young heritage language learners show a striking variability in their language skills. In the 1990s, a seminal investigation suggested that the variability in young heritage language learners' vocabulary skills may be linked to the similarly striking variability in their environments (Pearson, Fernández, Lewedeg, & Oller, 1997). A substantial body of research has subsequently focused on unraveling the effects of various environmental factors on heritage language learners' lexicon (Unsworth, 2016). This research has led to the consensus that there are two main features of heritage language learners' environment that impact vocabulary growth: the quantity and the quality of input received in the heritage language (Unsworth, 2016).

"Quantity" refers to the amount of input in the heritage language a child receives. Generally, receiving more input is related to a larger vocabulary in that language (Hammer et al., 2014). The amount of input is often assessed through mothers' reports on the relative use of the heritage versus the societal language. However, it is likely not the relative amount (e.g., receiving more heritage language input than societal language input) which is the key. Instead, it is likely to be the absolute amount of input in the heritage language that is critical for heritage language vocabulary (De Houwer, 2011). As this line of research has focused on young heritage language learners, it is unsurprising that their own parents' use of the heritage language has consistently been identified as a major resource for heritage language vocabulary (e.g., Hammer, Davison, Lawrence, & Miccio, 2009; for Turkish heritage language learners see Biedinger, Becker, & Klein, 2015; Willard, Agache, Jäkel, Glück, & Leyendecker, 2015). Older siblings can also play an important role for children's heritage language vocabulary by shifting family language use towards the societal language (Bridges & Hoff, 2014). The gender of a child may also affect family language use patterns. For example, one study showed that low income Puerto Rican mothers in the US may use the heritage language more frequently with girls than with boys (Hammer, Lawrence, Rodriguez, Davison, & Miccio, 2011).

"Quality" refers to a large set of characteristics of language input. Drawing on research with monolinguals or heritage language learners' societal language, "quality" may include the actual makeup of the input in terms of the variety of words used (Hoff, 2006; Pan, Rowe, Singer, & Snow, 2005; Rowe, 2012), whether the speaker providing the input is "native" (Place & Hoff, 2011) or whether the speaker mixes two languages (Byers-Heinlein, 2012). The situation during which input occurs, such as during storybook reading, is also related to "input quality". Joint storybook reading specifically has been found to be conducive for heritage language vocabulary development (Biedinger et al., 2015; Lewis, Sandilos, Hammer, Sawyer, & Méndez, 2016; Willard et al., 2015).

Overall, this research with young heritage language learners illustrates the importance of environmental factors for heritage language vocabulary development.

Yet, when applying a bioecological model (Bronfenbrenner, 2005) to heritage vocabulary development, there is more to learning new words than passively receiving large amounts of heritage language input. Young heritage language learners actively interact with their environments in multiple ways. For example, attending childcare may increase heritage language learners' preference for the societal language, and that in turn may cause parents to use more of the societal language (e.g., Prevoo, Mesman, van IJzendoorn, & Pieper, 2011). Moreover, producing output, which refers to heritage language learners actually using the heritage language themselves, may be related to heritage language vocabulary over and above input (Bohman, Bedore, Peña, Mendez-Perez, & Gillam, 2010). Further, child characteristics are also related to vocabulary development, such as processing efficiency (Unsworth, 2016) and phonological working memory (e.g., Ebert et al., 2013), and nonverbal fluid intelligence (Daller & Ongun, 2018).

1.2 Monolingual adolescents' vocabulary development

Early childhood is regarded as a period of rapid vocabulary expansion (Snedeker, 2009). For monolinguals, school age and adolescence appear to be periods of perhaps somewhat slower but still continuous vocabulary growth (Snedeker, 2009). According to estimates, monolingual adolescents learn between 10–15 new words a day (Berman, 2008). These words tend to be more rare, complex, and abstract than words learned in early childhood (Berman, 2008; Nippold, 2006). Where do adolescents pick up these words? They can learn from direct instruction, such as when teachers explain words in a classroom. However, incidental encounters with new words may be the much more important route of word learning (Nippold, 2002). Such incidental exposure to unknown words can occur through various sources, such as during conversations or while consuming media. Books specifically tend to contain a high frequency of complex, abstract and rare words. Thus, when children begin reading, this provides them with a powerful means of growing their vocabulary independently from input through social interaction partners (Berman, 2008; Nippold, 2006; Nippold, Duthie, & Larsen, 2005). Presumably, there are transactional effects between reading and vocabulary size. Reading leads to vocabulary growth, which then leads to further reading, which then stimulates further vocabulary growth, and so on (Mol & Bus, 2011).

How do adolescents work out the meaning of new words they encounter from various sources? One strategy is to consult electronic dictionaries or to ask others about the meaning of new words. However, it may be much more common to infer the meaning of new words from the context they occur in. Another metalinguistic strategy is to analyze the morphological structure of a word and use this information to infer meaning. Adolescents may be differently equipped to make sense of

words from the context and their morphology, and those with better reasoning skills are likely to be more effective (Nippold, 2002). Cognitively advanced adolescents will also find it easier to grasp the increasingly complicated concepts denoted by new words that they encounter (Berman, 2008). When discussing interrelations between vocabulary and cognitive abilities, it is noteworthy that there are competing theoretical accounts on whether there are reciprocal effects between vocabulary as a measure of “crystallized intelligence” and other “fluid intelligence” measures, whether fluid intelligence unidirectionally affects vocabulary or whether both are reflective of an underlying g-Factor (Kievit et al., 2017). However, as a side note, it has also been pointed out that for children growing up with two languages, tests of vocabulary in only one of their languages are an inadequate index of cognitive development (Umbel, Pearson, Fernández, & Oller, 1992) because their vocabulary knowledge is distributed over two languages (Oller, 2005).

Adolescent characteristics are not only involved in learning word meanings, but also in new word forms, patterns of phonemes. Their phonological working memory, for example as assessed through nonword repetition, appears to be heavily involved in learning word forms (Baddeley, 2003).

In sum, this evokes a picture of monolingual adolescents as less dependent on the language input provided by interaction partners. Through reading, monolingual adolescents have a direct means of controlling their amount of language input.

1.3 Adolescent Turkish heritage language learners in Germany

The sample of adolescents in this study stems from the Ruhr area. This region attracted large numbers of so-called “guest workers” from Turkey during the 1960s and 1970s. Many of the original first generation “guest workers” did not return to Turkey, but instead settled in the area and brought their families to Germany (Daller & Treffers-Daller, 2014). Despite many decades having passed since the initial immigration of “guest workers”, the socioeconomic situation of families of Turkish heritage is still markedly depressed compared to that of non-immigrants (Autorengruppe Bildungsberichterstattung, 2012; Statistisches Bundesamt, 2015).

Today, in cities in the Ruhr area, over 10% of children may be of Turkish origin (Leyendecker, Citlak, Schräpler, & Schölmerich, 2014). Accordingly, the Turkish language is a part of everyday life. In the Ruhr area, Turkish is spoken in various small businesses such as bakeries, butchers, green grocers and hair salons. Doctors, pharmacies and medical services are available in Turkish. Libraries and bookstores often stock a small selection of Turkish books. Turkish is still widely used within families of Turkish origin (Caspar & Leyendecker, 2011; Haug, 2008), which may have to do with a tendency for people of Turkish origin to seek a marriage partner from Turkey (González-Ferrer, 2006).

Also, due to the strong representation of people of Turkish origin in the area, adolescents may have several Turkish-speaking peers and friends in their social networks. Many of these are likely to be later generation immigrants, who speak both German and Turkish. This provides Turkish heritage language learners with a choice of using Turkish, German, or mixing both languages with Turkish-speaking peers.

Formal instruction in Turkish is widely available through “supplementary mother-tongue instruction” provided through schools or consulates (Pfaff, Dollnick, & Herkenrath, 2017) – in 2017 in the federal state of North Rhine-Westphalia (which contains the Ruhr area) 35,000 students participated in this type of instruction in schools (Bildungsportal des Landes Nordrhein-Westfalen, 2017). In some schools in North Rhine-Westphalia, students can also select Turkish as a foreign language (Bildungsportal des Landes Nordrhein-Westfalen, 2018). In North Rhine-Westphalia, it is assumed that most students attending “supplementary mother-tongue instruction” do so through their regular schools (Wissenschaftliche Dienste des deutschen Bundestages, 2017). For these lessons, there exist state-mandated curricula (Bildungsportal des Landes Nordrhein-Westfalen, 2017). However, we are unaware of research on the effectiveness of this type of Turkish instruction. While this form of “mother-tongue instruction” is widely available, there are very few public bilingual Turkish-German school programs (e.g., Ministerium für Schule und Weiterbildung des Landes Nordrhein-Westfalen, 2016). Thus, Turkish heritage language learners generally can also be assumed to be aware of a “monolingual norm”, which may create a powerful draw towards the societal language (Oller & Eilers, 2002; Oller, Jarmulowicz, Pearson, & Cobo-Lewis, 2011; Pearson, 2007).

2. This study: Potential resources for adolescents’ Turkish heritage language vocabulary

The research on young heritage language learners’ vocabulary development highlighted the importance of heritage language input through the family. Adolescents generally tend to spend less time with their families (Wigfield, Byrnes, & Eccles, 2006). This raises the question as to whether heritage language input and use within the family remain such important resources during adolescence. Other potential sources of input and opportunities to use the heritage language lie within the peer and friend group. However, this is only the case if members of the peer group also speak Turkish, and adolescents and their peers choose to use the Turkish language. Thus, we examined whether Turkish use in the family and with friends were correlates of adolescents’ Turkish vocabulary. In order to account for adolescents’

varying numbers of Turkish-speaking friends, we also included the percentage of Turkish-speaking friends in the adolescents' network, as well as the statistical interaction between Turkish use with friends and the percentage of Turkish-speaking friends. The statistical interaction indicates whether Turkish language with friends is more strongly connected to Turkish vocabulary for those adolescents with a high percentage of Turkish friends.

Research on monolingual adolescents highlighted the importance of reading as a means of learning new words. Turkish heritage language learners have potential access to an overabundance of German books through bookstores and libraries. Even though there may be small selections of Turkish books and buying online is an option, generally Turkish books are much harder to come by in Germany. It is not clear whether reading in German would have any effect on heritage language vocabulary (e.g., Farver, Xu, Eppe, & Lonigan, 2006), but reading in Turkish is likely to be more effective. Thus, we examined whether reading frequency as well as the language adolescents read in were correlates of Turkish vocabulary. We also included the statistical interaction between the two, which indicates whether the connection between frequent reading and Turkish vocabulary is closer when adolescents use Turkish for reading.

Even if reading is an important source of vocabulary for adolescents, formal instruction is another possible source. The societal language, German, is omnipresent in schools. Adolescents are exposed to increasingly complex German vocabulary every day, not only during designated German lessons but also during many other subjects such as history, science, math, or even physical education. In comparison, even though Turkish heritage language learners may attend Turkish classes in school or through consulates, these classes are limited to several hours a week. Thus, we examined whether attending some form of Turkish classes was a correlate of Turkish vocabulary.

We also examined whether a number of adolescent characteristics were correlates of Turkish vocabulary. We included gender, as it may be related to familial heritage language input. We also included adolescents' nonverbal reasoning as an ability that may relate to the effectiveness of inferring meaning and thus making sense of new words. As a non-cognitive characteristic, we also examined adolescents' identification with Turkish culture. This is one psychological factor which may be seen as a proxy for adolescents' motivation to develop their heritage language despite a "monolingual norm" in German schools.

3. Method

3.1 Recruitment

The adolescent sample in this study came from a larger investigation that comprised several age cohorts. The aim of the larger investigation, of which the adolescents in our study were a subsample, was to investigate positive development of children of Turkish origin in Germany. The data were collected in the Ruhr area. We utilized multiple recruitment utilized strategies and sought the cooperation of numerous schools in the area. In such cooperating schools, teachers handed out brochures and collected response cards. At the same time, awareness for the larger investigation was raised by means of posters, flyers, and newspaper articles, as well as presentations at mosques and community centers. In addition, we procured the endorsement of community leaders and organizations. Potential participants were considered eligible if the adolescents' mother or the mother's parents or grandparents were born in Turkey. In addition, adolescents had to be born after 32 weeks gestational age, had to come from families without severe psychological difficulties, could not be currently living in a foster family, and could not have a referral to a special needs school. Finally, for this study, adolescents were excluded if mothers reported a dialect of Kurdish to be a main family language.

3.2 Participants

The sample for this study included $n = 78$ seventh graders ($M = 13;6$ years, range 12;8–15;5, $SD = 7$ months). Of these adolescents, 47 were girls (60%) and the remaining 31 were boys. All but two adolescents were born in Germany; for 5 this information was missing. All adolescents attended schools with German as the language of instruction. They attended different school tracks, with 6% in the lowest track (*Hauptschule*), 40% in the intermediate track (*Realschule*), 17% in the highest track (*Gymnasium*, completion of which provides entrance qualification for higher education), and 31% in comprehensive secondary schools (*Gesamtschule*); for 5 adolescents this information was missing. On average, the adolescents' families were of low-income status, with a monthly median net equivalized household income of 880€ (calculated according to the modified Organization for Economic Co-operation and Development equivalence scale; Hagenaars, de Vos, & Zaidi, 1994). Further descriptive information is in Table 1.

3.3 Measures

3.3.1 *Turkish receptive vocabulary*

At the time of testing there was no standardized Turkish vocabulary test that covered the wide age range from early childhood to adolescence that was represented in the larger investigation. Thus, Turkish vocabulary was assessed with an adapted research version modeled on the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4; Dunn & Dunn, 2007; Glück, 2009). A team of speech-language professionals (including native Turkish speakers) translated and adapted the items. In some cases, the difficulty of the original target word differed strongly between the US and the Turkish language context in Germany. In these cases, one of the distractor illustrations was chosen as the target. The research version was computer-based, with the adolescents hearing the recorded target word while viewing four color illustrations. The adolescents were instructed to click on the illustration matching the target word or on a green square if they did not know the answer. No basal and ceiling criteria were used (these are criteria that allow skipping certain item sets based on the individual's performance on previous items). Instead, adolescents were scored on a set of 100 items, not ordered by difficulty levels. The Spearman-Brown split-half reliability (odd vs. even) was .92. The maximum score was 100.

3.3.2 *Adolescent questionnaire*

Adolescents completed an extensive questionnaire. They reported on their mothers' and fathers' language use with them, and their own language use with their mother, father, and Turkish-speaking friends on a scale of "only German" (1) to "only Turkish" (5). An index was computed from mothers' and fathers' language use with the adolescent by averaging both items. Similarly, an index was computed from adolescents' language use with mothers and fathers. Adolescents' reading of books and magazines was reported on a scale from "once a month or less" (1) to "every day" (4). This item was ordinally scaled, thus, it was dichotomized with "frequent reading" corresponding to reading at least a few times a week. The language used for reading ("When you read, which language do you read in?") was reported on a scale from "only German" (1) to "only Turkish" (5).

The percentage of Turkish-speaking friends was assessed with an adapted version of the Social Network Inventory (Miller & Harwood, 2001). Adolescents were asked to name friends from school and other friends from outside of school. Then, they were asked to mark friends who spoke Turkish. The percentage of Turkish-speaking friends was computed by dividing the number of Turkish-speaking friends by the total number of friends. This percentage was dichotomized with a "high percentage" corresponding to more than 50% Turkish-speaking friends.

Adolescents' identification with Turkish culture was assessed with five items addressing a sense of belonging, commitment and identification with Turkish culture with an internal consistency of .79 (Berry et al., 1993; Phinney & Ong, 2007). Adolescents responded to statements such as "I feel close to Turkish people" on a scale from "not true" (1) to "very true" (5).

3.3.3 *Nonverbal reasoning*

Adolescents were administered the analogies subtest of the SON-R (Snijders, Tellegen, & Laros, 2005) as an indicator of nonverbal reasoning. This test is referred to as "nonverbal" as instructions do not rely on any specific language (administrators point to make clear the principle of the test). Moreover, test performance should not be dependent on skills in a particular language (unlike, for example, a test of a certain language domain). Finally, it does not require reasoning about language items (such as words or sentences). However, adolescents were of course free to use "inner language" to solve the tasks. While this test is not perfectly suited, we used it as a rough indicator of adolescents' ability to reason about the meaning of new word forms. Adolescents could obtain a raw score ranging from 0 to 30.

3.4 Procedure

Almost all families were visited at home for the duration of several hours. Trained research assistants administered the tests and answered questions regarding the questionnaire. Families were compensated with 25€ and a small gift for the adolescent.

4. Results

4.1 Bivariate correlations

Table 2 shows the bivariate correlations for the study variables. Without accounting for other variables, adolescents' Turkish vocabulary was positively connected to their nonverbal reasoning scores and to using Turkish for reading. Older adolescents had lower nonverbal reasoning scores and tended to read less frequently.

4.2 Multiple regression analyses

The correlates of adolescents' Turkish vocabulary were further explored in a set of multiple regression analyses. Prior to these, missing data were imputed with Mplus Version 8 (Muthén & Muthén, 2017) in order to avoid biased inferences. Fifty

data sets were imputed, and Mplus combined results across these data sets for the multiple regressions. Continuous predictors involved in interactions were centered prior to the regression analyses.

Predictors were entered into regression models as blocks of (1) adolescent characteristics, (2) variables related to reading (3) variables related to the family, (4) variables related to friends, and (5) instruction. We ran two series of regression models. Due to the small sample size and large number of predictors, in the first series, additional blocks of predictors were only retained if they improved model fit compared to the previous model in terms of the Akaike information criterion or Bayesian information criterion (AIC and BIC). The AIC and BIC are measures of how well the statistical model fits the data. For the second series of regression models, blocks were added one by one and retained in the next model regardless of whether they improved model fit. Thus, the first series is similar to a “stepwise” approach and the second series is a form of hierarchical regression. Both series of regressions produced very similar results. There were two exceptions: Firstly, the model including all blocks revealed several additional marginally significant (meaning at the $p < .10$ -level) predictors. Secondly, the model including all predictors except for instruction revealed additional marginally significant predictors. Thus, we report the first series of regressions analyses as well as the model including all the possible predictors in Table 3. The model including all predictors except for instruction is described below.

Model 1 (Table 3) included only the adolescent characteristics, which explained 26% of variance in Turkish vocabulary. Girls had a significantly larger Turkish vocabulary, and adolescents with higher nonverbal reasoning scores and stronger identification with Turkish culture had a significantly larger Turkish vocabulary. Age was not significantly related to Turkish vocabulary. Model 2 added a block of variables on reading, which did not improve model fit, despite the use of Turkish for reading being marginally significantly connected to higher Turkish vocabulary scores. Model 3 did thus not retain the block on reading but added a block on language use in the family. This did not improve model fit compared to model 1, and neither parents’ nor adolescents’ language use was a significant predictor of Turkish vocabulary. Model 4 again did not retain the family block but added a block on friends. Again, this did not improve model fit compared to model 1. Neither adolescents’ language use with their Turkish-speaking friends, nor a high percentage of Turkish-speaking friends, nor the interaction between the two was a significant predictor of Turkish vocabulary. Thus, model 5 again did not retain the block on friends, but only added whether adolescents attended Turkish classes. This did not improve model fit compared to model 1, and attending Turkish classes was not a significant predictor of Turkish vocabulary.

Model 6 shows includes all possible predictors. As in model 2, the use of Turkish for reading was marginally significantly connected to higher Turkish vocabulary scores. However, in model 6 the interaction between the language used for reading and frequent reading was marginally significant as well. We examined this interaction. More specifically, we examined for levels of the one (frequent reading) whether the other predictor (use of Turkish for reading) was connected to the outcome. This suggested that use of Turkish for reading predicted the Turkish vocabulary only of those adolescents who did not read frequently. Furthermore, parents' use of Turkish with the adolescents was marginally significantly connected to higher Turkish vocabulary scores. Finally, attendance of Turkish classes was marginally significantly connected to higher Turkish vocabulary scores. The same model, but not including instruction, showed that adolescents who used more Turkish with their Turkish-speaking friends had marginally significantly higher Turkish vocabulary scores.

To summarize, the block of adolescent characteristics was the only one which consistently explained variance in Turkish vocabulary. Despite increasing the explained amounts of variance, adding any other blocks of predictors did not improve model fit as indicated by AIC and BIC. The connection between the language used for reading and Turkish vocabulary which was visible in the bivariate correlations only resurfaced marginally in the multivariate analyses. Parents' use of Turkish with the adolescents and attendance of Turkish classes were not connected to Turkish vocabulary in the bivariate analyses, and only marginally significantly so in the model including all predictors. Adolescents' language use with Turkish-speaking friends similarly was only marginally significant in one model including all blocks but instruction.

Table 1. Descriptive statistics for the study variables (means and standard deviations or percentages)

	n	M/%	SD	Min	Max
Turkish vocabulary (raw score)	73	55.45	11.58	30	81
Age (months)	78	162.21	6.96	152	185
Nonverbal reasoning (raw score)	75	19.51	5.00	7	31
Identification with Turkish culture	76	4.20	0.72	1.6	5
Turkish use parents → adolescent	76	3.62	0.53	2	5
Turkish use adolescent → parents	75	3.47	0.66	2	5
Turkish use adolescent → friends	75	2.80	0.97	1	5
Language of reading Turkish	73	1.85	0.86	1	4
Reads frequently	77	47%			
Has high % of Turkish friends	76	55%			
Attends Turkish classes	72	35%			

Note. See method section for description of measures.

Table 2. Bivariate Pearson correlations between the study variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Turkish vocabulary (raw score)	1	-0.13	0.16	0.41***	0.19	0.04	0.24*	0.17	0.15	0.17	-0.07	0.16
2. Age (months)		1	-0.14	-0.38**	0.06	-0.21	-0.08	0.13	0.09	-0.10	-0.10	0.04
3. Girl			1	-0.02	-0.13	0.15	0.03	-0.07	0.14	-0.06	0.06	0.06
4. Nonverbal reasoning				1	-0.17	0.17	0.09	0.01	-0.07	-0.02	-0.13	0.02
5. Identification with Turkish culture					1	-0.24*	0.17	0.13	0.14	0.10	0.12	0.03
6. Frequent reading						1	-0.09	-0.02	-0.19	-0.23*	-0.32**	-0.10
7. Language of reading Turkish							1	-0.02	0.15	0.40**	0.27*	-0.10
8. Turkish use parents → adolescent								1	0.66***	-0.09	-0.11	-0.11
9. Turkish use adolescent → parents									1	0.23*	0.11	0.10
10. Turkish use adolescent → friends										1	0.25*	0.01
11. High % of Turkish friends											1	0.22
12. Attends Turkish classes												1

$p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Note. See method section for details on measurement of variables. Turkish use always refers to the relative use of German vs. Turkish.

Table 3. Multiple regression models for adolescents' Turkish vocabulary raw scores

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Child						
Age (months)	0.11	0.10	0.07	0.12	0.10	0.07
Girl	4.70*	4.48 †	4.59†	5.13*	4.51†	5.40*
Nonverbal reasoning	1.09***	1.01***	1.07***	1.07***	1.08***	0.93***
Identification with Turkish culture	4.48**	4.30*	4.15*	4.35**	4.45**	4.05*
Reading						
Frequent reading		-1.69				-1.56
Language of reading Turkish		3.634†				3.38†
Frequent reading*language of reading		-4.70				-4.74†
Family						
Turkish use parents → adolescent			2.28			5.25†
Turkish use adolescent → parents			0.80			-2.47
Friends						
Turkish use adolescent → friends				2.66		2.91
High % of Turkish friends				-2.05		-2.26
High % of Turkish friends*Turkish use adolescent → friends				-1.18		-1.07
Instruction						
Turkish classes					2.36	4.23†
Model Fit						
BIC	603	610	610	612	606	627
AIC	589	589	591	591	590	592
R ²	0.26**	0.32**	0.29**	0.30**	0.28**	0.39***

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

5. Discussion

We sought to uncover potential resources for adolescents' Turkish heritage language vocabulary. A main finding was that adolescent characteristics such as gender, nonverbal reasoning abilities and identification with Turkish culture explained a substantial amount of variance in vocabulary scores. Neither the characteristics related to reading, the family, friends, instruction, nor all of them together explained as much variance in Turkish vocabulary as the adolescent characteristics alone. Nevertheless, due to the relatively small sample, we also discuss the marginally significant predictors such as the language used for reading.

5.1 Adolescents own characteristics are potential resources

In all models accounting for other variables, girls had an at least marginally significantly larger Turkish heritage language vocabulary than boys. One possible explanation for this is that parents were using more of the heritage language with girls (Hammer et al., 2011). Another possible explanation is that girls identify more strongly with their Turkish heritage than boys do (Suárez-Orozco & Qin, 2006). This relates to a more general idea that daughters may spend more time with their immigrant families compared to sons and that immigrant parents consider daughters to be bearers of the heritage culture (Suárez-Orozco & Qin, 2006). However, this gender effect held true even when accounting for family language use and identification with Turkish culture. Moreover, there was no indication that the adolescent girls differed significantly from the boys in their language exposure, identification with Turkish culture, or any of the other considered variables. Thus, future research with larger statistical power may replicate the gender difference in Turkish heritage language vocabulary uncovered here, and examine what factors lead to such a gender difference. Mediation models especially lend themselves to uncovering such processes. Mediation analysis models how one variable (such as gender) can affect an outcome variable (Turkish vocabulary) by way of another variable (the mediator).

Regardless of whether viewed bivariately or accounting for various other variables, in all analyses, adolescents with higher nonverbal reasoning ability had a larger Turkish heritage vocabulary. It has been suggested for monolingual adolescents that reasoning is helpful for making inferences about word meanings and understanding complex concepts (Nippold, 2002). Throughout the child and adolescent years, heritability plays an increasing role in intelligence (Bouchard, 2013). However, it still may be possible to specifically support adolescents in making inferences about word meanings from the available context and morphological information

(Nippold, 2002). Importantly, in our study, we assessed reasoning through a non-verbal test. This is of course not an optimal measure of the ability to reason about the meaning of words.

Moreover, there are other alternative interpretations of the connection between our nonverbal reasoning measure and Turkish vocabulary. As noted above, it is not clear whether nonverbal reasoning and Turkish vocabulary might both be affected by a common underlying g-Factor (without causal effects between the two), or whether there are reciprocal effects. However, previous research on the directionality of effects does not deal with heritage language learners (Kievit et al., 2017). Another line of previous research focuses on whether bilingualism confers children with cognitive advantages. Such research usually compares various bilingual groups with monolingual groups. Several studies have been interpreted as showing positive effects of bilingualism on certain nonverbal cognitive tasks (Bialystok & Majumder, 1998; Lauchlan et al., 2012), perhaps especially for children exposed to a large amount of the heritage language (Daller & Ongun, 2018). Our relationship between nonverbal reasoning and vocabulary is not inconsistent with a so-called bilingual advantage or the “threshold hypothesis” (Daller & Ongun; 2018; McAlister, 2008). Importantly, all the children in our sample had sufficient German skills to fill out a questionnaire in German and had all attended schools with German as a language of instruction for nearly seven years. It is, thus, conceivable, that the relationship between our nonverbal reasoning measure and Turkish vocabulary arose due to children having overcome certain “thresholds” in both their German and Turkish language skills. However, our study provides no direct test of the threshold hypothesis as it focuses solely on Turkish vocabulary instead of the combined skills (either under or over some threshold) in both Turkish and German. Future longitudinal studies can elucidate the nature of the relationship between cognitive abilities and heritage language vocabulary.

In all models accounting for other variables, adolescents who identified with the Turkish culture more strongly had a larger Turkish heritage vocabulary. One way to interpret this is that adolescents who identify with their heritage culture more strongly also feel a stronger desire to increase their heritage language skills. However, another equally valid interpretation is that better heritage language skills contribute to adolescents feeling more connected to their heritage culture. The present study was cross-sectional and thus does not allow final conclusions on which of the two explanations are correct (or both, or neither). The direction of causality can only be examined in future longitudinal studies. Future studies may also explore what factors cause some adolescents to want to develop their heritage language and others not. Many other factors beyond identification with the heritage culture may play a role for creating such a motivation. For example, family relationships and behaviors (Liu, Benner, Lau & Kim, 2009), achievement motivation, the tendency

to feel anxious and embarrassed when interacting with monolingual speakers of the heritage language (Jean & Geva, 2012; Sevinç & Dewaele, 2016), and the value ascribed to the heritage language may be important.

Unexpectedly, we did not find age to be connected to Turkish heritage vocabulary. One possible explanation for this is that not all adolescents are experiencing growth of their Turkish heritage vocabularies. Only longitudinal studies can shed more insight on whether this is the case. Another explanation is that age was connected to nonverbal reasoning in complex ways. Generally, older adolescents are expected to have stronger nonverbal reasoning scores. For our seventh-graders, nonverbal reasoning was negatively related to their age. Our sample had a very large age span. Some of the older seventh graders may simply have been slightly older at school enrolment due to their birth month. Others may “still” be in seventh grade because of grade retention or because they were initially held back from school enrolment because of low readiness – and both may be connected to nonverbal reasoning. Thus, the relationship between age and Turkish heritage language vocabulary is complicated because it is intertwined with other variables such as nonverbal reasoning. Such complex relationships can be studied with moderation and mediation models; another possibility is to study large samples where one can control for grade retention and late enrolment.

5.2 Reading as a resource?

Contrary to expectations, we found no evidence that frequent reading was connected to Turkish heritage vocabulary. There are several interpretations for this, and reading should not be prematurely dismissed as a resource. One interpretation is that reading is only really effective for Turkish vocabulary if it happens in Turkish. This would be in line with research on younger heritage language learners that suggests that the effect of joint reading with parents is language specific (e.g., Farver et al., 2006). Accordingly, we did find some indication that adolescents who used Turkish for reading had a larger Turkish heritage vocabulary. We also found some weak (marginally significant) evidence for an interaction between reading frequency and the language used for reading, which suggested that using Turkish for reading was especially important for infrequent readers. Only 23% of the adolescents used at least equal amounts of Turkish and German for reading. Despite the possibilities of online retail, it likely takes a greater effort to obtain Turkish language reading material. Thus, our results on the effects of using Turkish for reading are based on a small group of adolescents who both had access to Turkish language books and magazines and who actually chose to read them. Clearly, further studies are needed to examine reading as a potential resource for Turkish heritage language vocabulary. Future studies using self-report questionnaire data should consider

assessing the reading frequency for the heritage and the societal language separately. Assessed in such a manner, the effects of reading in Turkish or in German may become more evident and easier to interpret.

5.3 Family language use as a resource?

There was only very little (marginally significant) evidence for Turkish use between parents and adolescents being connected to Turkish heritage language vocabulary. A larger sample may have uncovered small sized effects. Yet, our finding seems noteworthy when compared to those from younger Turkish heritage language learners, where language use in the family has emerged as an important predictor of Turkish vocabulary (Biedinger et al., 2015; Willard et al., 2015). Thus, our results do not clearly support a strong continued importance of family language use during adolescence. However, this may also have to do with family language use in this study being measured concurrently with Turkish vocabulary. A study from the US showed that early family language use predicted Spanish heritage language vocabulary up to the age of 12 (Mancilla-Martinez & Lesaux, 2011). Viewed in this light, one way to interpret our result is that perhaps family language changes during adolescence, and language use some time prior to the vocabulary assessment, is a better predictor for vocabulary.

5.4 Friends as a resource?

We found no evidence that having many Turkish speakers among one's friends or frequently is connected to adolescents' Turkish heritage language vocabulary. Perhaps merely having friends with whom adolescents could potentially speak Turkish does not suffice – it might be more important to actually hear and use Turkish. However, we found only very weak evidence that adolescents' use of Turkish with their Turkish-speaking friends was connected to their Turkish heritage vocabulary. This may have to do with the one item we employed to assess Turkish use with Turkish-speaking friends: It may have been hard for adolescents to estimate their average language use with several different friends. An alternative explanation, which also applies to language use in the family, is that adolescents have developed expertise at mixing the heritage and societal language. Adolescents then may have felt uncomfortable asking research assistants about how to answer items on language use regarding language mixing because they are aware that it is often derided (Müller, Kupisch, Schmitz, & Cantone, 2011). Future studies should consider language mixing. Moreover, it remains to be seen whether potentially more reliable assessments of language exposure and use, such as daylong audio recordings, are feasible with adolescents (Marchman, Martínez, Hurtado, Grüter, & Fernald, 2017).

5.5 Instruction as a resource?

There was only very limited evidence that adolescents who attended Turkish classes had larger Turkish heritage vocabularies. This may have with this type of “supplementary instruction” only providing exposure to a higher register of the Turkish language a few hours a week. Providing heritage language speakers with more hours of intensive Turkish instruction a week may be a promising avenue.

5.6 Limitations and future directions

Several limitations and future directions were mentioned in the previous sections. Yet, we want to emphasize three points. First, due to the relatively small sample size and thus limited power to uncover existing relationships, non-effects should not be over-interpreted. Limited power makes it unlikely to uncover existing small relationships. For example, bivariate correlations nearing a size of .20 (which we found several of) are much more likely to be judged significant in larger samples. Large effects should also have become evident in a smaller sample such as ours. Still, the complex interrelations between various potential resources can only adequately be explored by using moderation and mediation analyses in larger samples. Second, this is a cross-sectional study. Causal relationships cannot be inferred. Furthermore, we examined correlates of a “snapshot” of development, and not how potential resources are related to actual heritage vocabulary growth. Third, our study largely relies on adolescent self-report. Even though adolescent self-report is routinely used in large-scale studies (e.g., Notten & Becker, 2017), other techniques such as time sampling relying on smart phones may provide better estimates of certain behaviors.

6. Conclusion

Our explorative study provides initial insights into an understudied group: adolescent Turkish heritage language learners in Germany. With the nature of our study in mind, our results indicate that adolescent factors could be major resources for Turkish heritage vocabulary development. How well adolescents are able to draw meaning from language input, as indexed by their reasoning skills, may be central for Turkish heritage vocabulary, but that is only one of several possible interpretations. What is more, whether adolescents identify with the Turkish culture may be vital for continuing to develop a heritage language that is not universally valued in Germany.

Our results gave only few hints on where adolescents actually pick up new words. Neither reading, nor the family, nor friends or instruction emerged as highly

relevant for Turkish heritage language vocabulary. Is being able and wanting to learn new words more important than what goes on in an adolescent's language environment? This would be a false conclusion from such an explorative study. Moreover, some level of exposure to the heritage language is absolutely necessary in order to learn new words, even for very smart and driven adolescents. Thus, the main question that arises from our study is where adolescent heritage language learners actually learn new words. Perhaps many factors have numerous small effects that will become visible in future studies. The nature of the interplay between adolescent heritage language learners' characteristics and their language environments remains to be revealed.

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The effects of heritage language experience on lexical and morphosyntactic outcomes

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In heritage language (HL) bilingualism, recent work has focused on understanding the dynamic effects that different input types can have on heritage language development and outcomes (e.g., Bayram et al., 2017; Kupisch & Rothman, 2018; Polinsky, 2018; Putnam & Sanchez, 2013; Karayayla & Schmid, 2019). The underlying question is to what extent one's individual experiences with the HL modulate HL development and its outcomes. Following this line of research, we provide evidence from two datasets of Turkish as a HL in Germany that attempts to identify the relative ability of various aspects of language experience (parental background, language use at home, time spent in the HL country, age of exposure to the societal majority language, and quality of HL use) to predict lexical and morphosyntactic performance in Turkish. The results for the first HS group (adolescents) indicate that 'parental language background' was the strongest predictor of both lexical diversity and morphosyntactic complexity; for the second HS group (adults), "Turkish use in the home" and "Current Turkish use" were the strongest predictors. We interpret these results as evidence for the variable role played by different types of input in shaping HL outcomes, highlighting the need for more systematic approaches to measuring (and predicting) the effects of input across different areas of language.

1. Introduction

Heritage speaker (HS) bilinguals acquire their heritage language (HL) in the home context as (one of) their first language(s) in addition to the majority language of the larger society, which is acquired either from birth alongside the HL, or later, often once the child enters kindergarten or school. Various definitions are available of what is regarded as a HL and who its speakers are (e.g., Valdés, 2000; Benmamoun, Montrul, & Polinsky, 2013), but we adopt the one used in Rothman

(2009) as follows below because it presents neutrally with respect to terminological debates in the field:

[a] language qualifies as a *heritage language* if it is a language spoken at home or otherwise readily available to young children, and crucially this language is not a dominant language of the larger (national) society [...] the *heritage language* is acquired on the basis of an interaction with naturalistic input and whatever in-born linguistic mechanisms are at play in any instance of child language acquisition. Differently [from monolingual acquisition], there is the possibility that quantitative and qualitative differences in *heritage language* input, influence of the societal majority language, and differences in literacy and formal education can result in what on the surface seems to be arrested development of the *heritage language* or attrition in adult bilingual knowledge. (Rothman, 2009, p. 156)

Formal linguistic HS research has been predominantly concerned with the HS-to-monolingual asymmetry, ubiquitously documenting HL production and comprehension divergence from monolingual baselines (see Section 2 of this chapter). Although many bilingual children – HSs in consideration of the above definition (see Kupisch & Rothman, 2018) – show similar acquisition patterns to monolinguals during early childhood (see, e.g., De Houwer, 1995; Meisel, 1986, 1989, 2011), when tested in young adulthood, their HL grammatical performance and competence in many domains of grammar often differ from that of monolingual counterparts (Benmamoun, Montrul & Polinsky, 2013; Kupisch & Rothman, 2018; Montrul 2008, 2016; Polinsky, 2018). In contrast, others have shown HSs to be indistinguishable from their monolingual counterparts, at least in some domains (Kupisch et al., 2014a). Equally true is the fact that individual HSs often differ significantly from one another both on an individual level (Kupisch et al., 2014b), but also between speakers of the same HL in different geographical contexts (e.g., Spanish as a HL in the US as compared to Canada and Holland; see, for instance, van Suchtelen, 2014; van Osch & Sleeman, 2016). In some ways, this individual variation in the HL aligns with the child L1 to adult L2 ultimate attainment debate in the generative school (see Rothman & Slabakova, 2018). The fact that some adult L2 learners achieve a level of proficiency indistinguishable from native monolinguals sustains a principled questioning of certain claims from a strict interpretation of critical period effects, shifting from a “can versus cannot” to “do versus do not” perspective (Rothman, 2008). We do not focus on HS contributions to debates over critical period effects per se (see Montrul 2008; 2016 for discussion). However, we highlight a parallelism to the L2 ultimate attainment debate, namely in shifting the question towards the “do versus do not” dichotomy in an attempt to explain the continuum of HS developmental paths and outcomes. Why is it that some HSs

“do” when most – along a wide continuum – “do not” achieve the same end state as monolingual counterparts? On a whole, this asymmetry testifies to the fact that access to qualitatively and quantitatively different input can and does vary across individuals, giving rise to degrees of differential HL outcomes.

It is also important to note that the crucial role linguistic input plays in the development of language and its ultimate attainment is acknowledged universally, and independently of one’s theoretical motivations (see, e.g., Rothman & Chomsky, 2018; Lieven, 2010; Yang et al., 2017; Zyzik, 2009). Extreme examples illustrate that insufficient input during crucial years of language development (from early childhood to adolescence) can lead to irreversible outcomes in adulthood (see, for instance, the case of Genie in Curtiss et al., 1974, and children with hearing impairment in Friedmann & Rusou, 2015; Friedmann & Szterman, 2006, 2011). More recent studies with the help of large corpora and advanced statistical modeling are beginning to allow for predictions as regards how much input a child needs in order to make generalizations for specific domains of grammar (e.g., the Tolerance Principle; Yang, 2016). In this light, HL adult outcome variation becomes even more interesting and perplexing precisely because, as a subtype of naturalistic first language acquisition, it is driven by the same cognitive mechanisms – domain-general and domain-specific – as is the case of all other childhood language acquisition scenarios (monolingual L1 and child 2L1) (see, e.g., De Houwer, 1995; Meisel, 2004, 2011; Serratrice, 2013; Yip & Matthews, 2007), but does not end up with the same outcome conformity as observed in the case of monolingual first language acquisition. It is this discrepancy in outcomes between HSs and other sets of native speaker populations that motivates the present attempt.

In the spirit of previous research that has sought to document, quantify and understand the links between input and ultimate attainment in early bilinguals (e.g., De Houwer, 2007, 2018, Unsworth, 2013, Marian et al., 2007, Bialystok & Luk, 2013), we bring together two preexisting sets of oral production data from speakers of Turkish as a HL in Germany from two different age groups: one where HSs are tested in late childhood/adolescence (10–16 year olds), and the other comprised of adults (20–41 year olds). By taking a fresh look at these datasets, we examine the effects of experience-related factors on two composite indicators of language achievement: Lexical Diversity (LD) and Morphosyntactic Complexity (MSC). As these datasets were gathered by different researchers under different circumstances, our aim is not to compare them to one another, but rather to investigate the extent to which experience-based outcomes are valid across all age groups comprising the HS continuum.

2. Background

Today the HL literature is dominated by three main proposals that aim to describe HL outcomes. “Incomplete acquisition” or “arrested development” proposals essentially claim that HL development tapers off, falling behind standard monolingual development due to reduced input in the home language (Montrul, 2008, 2016). This is claimed to occur due to a shift in language dominance and use with entrance into schooling in the dominant societal language in early childhood, which goes hand-in-hand with a decrease in exposure to and use of the home language. Parts of the HL grammar are claimed to not fully develop, thus seeming incomplete in adulthood as compared to the monolingual variety. A second proposal focuses on individual attrition; that is, the loss of competence in previously-acquired grammatical properties in childhood as observed in adult HL outcomes (e.g., Polinsky, 2011, 2018). Alternatively, Putnam and Sánchez (2013) suggest that the observed HL outcomes do reflect a complete yet alternative path of development, and differences from the baseline are explained as the natural consequence of unique potential for feature assembly. Essentially, this approach proposes that representations of structures in the HL are on a dynamic path that can be monolingual-like in its outset, yet change with increased exposure to and use of the majority language; that is, majority language features may affect the mental representations of the HL, leading to a HS-distinct configuration of HL features. Their approach provides a testable formalism for how HS-to-monolingual differences can obtain while preserving the view that ultimate grammars are in fact complete, albeit different. In the same vein, the “Missing Input Competence Divergence” (MICD) hypothesis (e.g., Pires & Rothman, 2009; Pascual y Cabo & Rothman, 2012) maintains that HS grammars are complete ones that primarily, although not exclusively, reflect differences in opportunities for convergence to monolingual-like levels. The common link between these approaches is that they all testify to “missing/reduced input”. However, there is still much work to be done on (1) identifying how HS input is different and how this leads to different outcomes and (2) at which time during development HSs’ grammars are vulnerable.

Examples of input-related outcomes in bilingualism are well documented in the literature. Effects of input “quantity”, often operationalized as the amount of parental input, have been shown, for example, by correlations between the amount of parental input and language use by their children (de Houwer, 2007), the amount of code-mixing they engage in (Genesee, Nicoladis & Paradis 1995; Nicoladis & Genesee, 1997), measures of language proficiency, and the degree of bilingual cognitive advantages (e.g., Luk & Bialystok, 2013). It is also known that bilinguals receive a different “quality” of input from their parents, who often exhibit differences to the baseline varieties spoken in their heritage countries (e.g., Sorace, 2004; Rothman, 2007). Effects of attrited parental input have been found,

for example, for VOT in Russian (Brehmer & Kurbangulova, 2017), nominal word formation morphology in Turkish (Karayayla, 2018) and Spanish dative experiencer verbs (Pascual y Cabo, 2013). Input quality has also been examined from the viewpoint of what literacy in the HL provides (Bylund & Diaz, 2012; Bayram et al., 2017). Finally, mirror-image studies that compare groups of early bilinguals with the same language combinations but in different countries (e.g., Italian as HL in Germany vs. Italian as dominant language in Italy) provide compelling evidence of experience-related effects on HL outcomes. In a number of studies, it has been shown that early bilinguals perform monolingual-like in their dominant language, while showing vast individual variation in their HL (e.g., Bianchi, 2013; Kupisch 2012, 2014). Comparison of different groups of heritage speakers suggest that diverging inter-group results might be related to opportunities for engagement with the HL at school (Kupisch & Rothman, 2018).

Naturally, we do not wish to claim that HS outcomes are shaped through “input” and/or “experience” alone. The abstract rules underlying heritage grammars go well beyond what these speakers hear in the input, just as is the case for monolinguals (see, for instance Berwick et al., 2011 for a discussion on the Poverty of the Stimulus debate). Processes such as transfer, acceleration and delay, domain-general and domain-specific constraints, individual level attrition are acknowledged as important factors, among others, in shaping HL development. Further, it is undisputed that the effects of input are modulated by various other factors, including so-called individual differences. For example, parents’ proficiency in the HL (Chondrongianni & Marinis, 2011), parental attitudes towards language use (Nesteruk, 2010) and the family’s socioeconomic status (Alba et al., 2002) all have effects on HL outcomes to differing degrees. Nonetheless, research also suggests that input remains the strongest factor. Tao, Cai, & Gollan (2019) tested the effects of cumulative HL exposure – measured across three different phases of childhood – on adult production in HL Spanish and in HL Mandarin. For HS both groups, input effects were found for all three stages, even when controlling for parental proficiency, attitudes, and SES. Thus, while ascertaining the relative contributive weight of such variables is of great value for understanding individual outcomes in general, engagement with the target language remains the single most important condition for acquisition to occur in the first place. This is true for monolingual L1 acquisition (see, e.g., Dąbrowska, 1997, 2012 for input effects in monolingual L1 speakers) – but arguably even truer for HSs who get vastly different amounts of exposure to their HL and do not have the same number of opportunities for equalization as tend to be provided by the monolingual experience.

The challenge of measuring HL experience has been problematized before (e.g., Montrul, 2008a; Tsimpli, 2014) and, indeed, there is no shortage of parental questionnaires intended to capture and quantify linguistic input and even qualitative measures of language experience and use, such as the BiLEC (Unsworth, 2013), the

LSBQ (Luk & Biaystok, 2013), LEAP-Q (Marian et al., 2007), (but see Unsworth, 2019, for an overview and discussion of a large selection parental questionnaires). Deciding which approach to take depends primarily on the participants and the research question, and there can arguably be no *one size fits all* measure of bilingual experience. One limitation of the existing questionnaires is that they are often intended for use with parents of younger bilinguals (such as the BiLEC; Unsworth, 2013), which may no longer be practicable for the unique contexts in which older HS individuals find themselves, or they are not tailored with a specific focus on HLs (e.g., the LSBQ, Luk & Biaystok, 2013, Anderson et al., 2018; the LEAP-Q, Marian, Blumenfeld, & Kaushanskaya, 2007). In fact, little work has been done on quantifying language experience in adult HSs (though see the ‘HL Use Score’ developed by Kupisch et al., this volume). Ideally, a questionnaire that attempts to measure language experience in adolescent or adult HSs should try to capture all contexts, situations or limitations under which HSs gain access to input, engage/use/interact with the language across the lifespan – from the most informal to the most formal levels of exposure.

For the current study, we necessarily rely on existing data collected via background questionnaires to operationalize language experience and its relation to outcomes of HL Turkish. These questionnaires differed across the two groups studied, but focused on parental background, Turkish use during childhood and at the time of interviewing, quality of Turkish use and access to literacy, and time spent in Turkey. Using the variables that are available to us in these two distinct datasets, this chapter aims to shed light on the role HL experience played across different age groups, namely adolescent and adult HSs. The research questions for the study are as follows:

- To what extent do adolescent and adult HS outcomes correlate with exposure to input, access to high quality input, and increased opportunity for engagement with HL literacy?
- To what extent do these correlations differ for the two HL different measures, namely lexical diversity and overall complexity in morphosyntactic structures?
- To what extent do they differ across the two different age groups?

We apply these questions to two existing datasets that have been used in several publications in the literature on Turkish as a heritage language in Germany, with adolescent HSs (collected in Hamburg between 2010–2011) and adult HSs (collected in Munich between 2010–2012). These two datasets were chosen because: (a) they both involve Turkish as a HL in Germany, (b) they cover a large range of ages at testing (10–40 years old), (c) and they are accompanied by demographic and experiential details from which we could derive scores for experiential variables. These experiential variables differ between the two datasets and are described in more detail in Sections 3.2 and 3.3.

3. Empirical studies

Since the procedures for measuring lexical diversity and morphosyntactic complexity were the same for both groups of participants, we will first explain how we calculated these two measures (Section 3.1). We then report on the experiential measures (different for each group), analyses and results for each group separately, starting with the Hamburg group (Section 3.2), and then the Munich group (Section 3.3).

3.1 Complexity measures

Before being submitted to the complexity measures below, both datasets were filtered for proper nouns, non-Turkish words, repetitions, and disfluency markers, and were then coded for morphosyntactic structures (embedded clauses such as noun clauses, adverbial clauses, relative clauses) following the procedures defined in Ege, Acarlar & Gülerüç (1998).

3.1.1 *Lexical diversity*

Measures of lexical diversity have traditionally been used to assess proficiency in L2 learners, and more recently also in research with HSs to illustrate language dominance (Treffers-Daller & Korybski, 2015). Lexical knowledge in the HL has been shown to correlate with syntactic complexity in the HL (Daller, Van Hout, & Treffers-Daller, 2003) and perceived nativeness in the HL (Lloyd-Smith, Einfeldt, & Kupisch, 2019). For the purposes of this study, we measure lexical diversity using a type-token ratio (TTR), which is obtained by dividing the total number of tokens in a subset of words by the number of types. Since TTRs are sensitive to text length, with longer texts rendering substantially lower TTRs than shorter ones (Schmitt, 2010), we used subsets of 200 words for the Munich group and 500 words for the Hamburg group (determined by the length of the shortest transcript from each dataset). We extracted the subsets from the middle section of the transcripts based on the observation that participants often needed a while to ‘open up’ to the interviewer.

3.1.2 *Grammatical complexity*

As an alternative to MLU (Mean Length of Utterance, Brown, 1973) as a measure of morphosyntactic complexity, we elected to use inter-clausal density – the proportion of embedded clauses to independent clauses produced (Nippold, 1993; Mimeau, Plourde, Ouellet, & Dionne, 2015; Scott, 2004; Scott & Stokes, 1995) – because it offers a more reliable alternative to MLU in older age groups. Turkish is an agglutinative language with an accompanying rich morphological system. There are dedicated morphemes signifying complex clause structures (i.e., relative, noun and adverbial clauses) as well as less-complex structures typically handled by

morphology agreement in non-agglutinative languages (i.e., nominal plural marking). Previous research has shown that monolingual Turkish children start using nonfinite nominalized verb forms (corresponding to clause structures) as early as preschool age (Aksu-Koç, 1994; Aksu-Koç & Slobin, 1985; Ketrez, 1999; Xanthos et al., 2011). Since we focus on adolescents and adults, we use clausal density as a measure of morphosyntactic complexity (MSC henceforth). In Turkish, embedded clauses can be finite and non-finite, and only the non-finite ones are marked with a specific morpheme, such as *-an* for subject relative clauses, *-nde* and *-ken* for adverbial clauses of time, and *-se* for conditional clauses, etc. When they are finite they are structurally like any other “simple” sentence, and are linked to the main clause with a linking word such as *cünkü* (because), *o zaman* (then), etc.¹ However, in this paper we focus on the nonfinite ones that are marked with a designated morpheme to calculate clausal density as this shows that the individual’s grammar has the required morphosyntactic representations to create the link between the embedded clause and the matrix clause. Participants’ use of non-finite embedded clauses are illustrated in the following examples. Embedded clauses are shown in brackets with suffixes italicized and capitalized. Designated morphemes are capitalized.

- (1) TU05GOK (HS in the Hamburg group)
 [[*Bütün kültür-ler-i tanı-MAK iste*]-*DİĞ-im için*] bana çok
 All culture-PLU-ACC know-N.CL want-ADV.CL-1SG me very
 dar gel-iyor.
 small/narrow come-PRO
 ‘It feels very narrow to me because I want to know about all the cultures.’
- (2) TU23SAN (HS in the Hamburg group)
 [*Zor-luk çek-TİĞ-im-i*] hatırla-mı-yor-um.
 Difficult-DER experience-N.CL-1SG-ACC remember-NEG-POSS-1SG.
 ‘I don’t remember experiencing any difficulty.’
- (3) HS03 (HS in the Munich group)
 [*Oğlan at-in üst-ü-ne bin-İP*] ağaç-ta
 Boy horse-GEN top-POSS-DAT mount-ADV.CL tree-LOC
 deliğ-e bak-ıyor.
 hole-DAT look-PRO
 ‘The boy is looking into the hole in the tree after getting on the horse.’

1. For a detailed analysis on complementation/subordination strategies in Turkish, see, for instance, Kornfilt (1997).

- (4) HS10 (HS in the Munich group)
 [Şimdi de oğlan bağır-ırKEN delik-te], bir tane tavşan
 Now too boy scream-ADV.CL hole-LOC one piece rabbit
 çık-ıyor delik-ten.
 exit-PRO hole-ABL
 'Now while the boy is screaming into the hole, a rabbit comes out of the hole.'

The utterances and morphemes in each sample were defined and computed as in Ege, Acarlar, & Gülerüz (1998, pp. 31–32). Utterances are defined as follows: (a) a group of words count as one utterance when there is an observable final pause signified by intonation, (b) half-finished utterances do not count, (c) a sentence consisting of two individual clauses divided by *and*, *because*, or *then* counts as two individual utterances and (d) a sentence with embedded clauses counts as one utterance. In defining morphemes, productive use is taken into account based on accurate and appropriate use. The data was automatically parsed using the Turkish morphological parser within TS Corpus (Sezer & Sever Sezer, 2013), the largest online and publicly-available morphologically-annotated corpus of Turkish. Each parsed morphological unit signifying complex clausal structures (noun clause, adverbial clause, relative clause) was then manually checked by the researcher and corrected when necessary.

3.2 Study 1: Adults HSs of Turkish in Hamburg

The data used for Study 1 originated from the *Türkisch, Englisch, Deutsch bei Herkunftssprechern* (TEDH) corpus, collected in Hamburg, North Germany (Kupisch, Stangen & Zielke, 2012; and see also Kupisch, Lloyd-Smith, & Stangen, this volume). The corpus contains semi-structured spoken interviews with 25 adult-aged HSs of Turkish on the topics relating to family background and language use. We use a subsample of 20 speakers (mean age = 26.9; range = 20 – 40 years). The interviews were conducted in Turkish by Turkish native speakers and were approximately 20 minutes in length. The majority of the bilingual participants ($n = 17$) were born in Hamburg. Their parents were first generation immigrants to Germany born in Turkey, and thus all participants were exposed to Turkish from birth, and Turkish was the predominant language in their homes while growing up. The participants' first intensive contact with German ranged from 0–9 years, usually coinciding with entrance into kindergarten or school (mean = 3.5; $SD = 2.2$). As is typically the case for HSs, some ($n = 8$) reported using more German after age 6 when they started school, and all were German dominant at the time of testing based on self-assessments. Over half ($n = 13$) said they used more German than Turkish on a daily basis, while others ($n = 8$) reported using both languages equally. They were

relatively homogeneous in terms of their academic and professional backgrounds; almost all ($n = 19$) had the German *Abitur* (university entrance) and were studying or had a university degree ($n = 18$).

To quantify the bilingual participants' language experience, weighted scores were attributed to various use and experience-related aspects reported in the questionnaires (Table 1; see also Kupisch, Lloyd-Smith, & Stangen, this volume). As shown in Table 1 below, these were grouped into the following four categories: (1) "Turkish use at home during childhood", which included parents' languages, and the language

Table 1. Experiential variables and weighted scores for the Hamburg group

	Experiential factors	Scoring
T use at home	Mother's L	1 pt. = Turkish
	L with Mother	0.5 pts. = German and Turkish
	Father's L	0 pts. = German
	L with Father	
	L between parents	
	L among siblings	
	L at home after age 6	
Quality of T use	Turkish schooling	2 pts. > 4 years Turkish schooling (in Germany or Turkey) 1 pt. = 1–3 years 0 pts. = No formal training
	Types of contact with T	3 pts. = Listening/speaking/reading/writing 2 pts. = One of the four types missing 1 pt. = Listening/speaking
	Relative use of T vs. G	3 pts. = 100% Turkish 2.5 pts. = 75% Turkish/25% German 2 pts. = 50% Turkish/50% German 1 pt. = 25% Turkish/75% German 0 pts. = 100% German
Current T use	T at work / school	1 pt. = Turkish used
	T during spare time	0 pts. = No Turkish used
	No. of people T is spoken with	1 pt. > 10 people, 0.5 pts. < 10 people, 0 pts. = 0 people
	Relationship to people speaking T with	1 pt. = Family/friends/relatives + classmates/colleagues 0 pts. = Family/friends/relatives
Time spent in Turkey	No. of years in Turkey	2 pts. > 3 years, 1 pt. > 1 year, 0 pts. = 0
	No. of visits in Turkey (past 5 years)	2 pts. = More than twice per year 1.5 pts. = 1–2 times per year 1 pt. = Once per year 0.5 pts. = Once or twice in 5 years 0 pts. = Never

spoken with their parents and siblings; (2) “Quality of Turkish use”, including the number of years of Turkish schooling (either in Turkey or in Germany at Turkish afternoon schools) and types of contact with the language; (3) “Current language use”, which included relative language use overall/at work/university/in their spare time, and number of conversation partners; and (4) “Time spent in Turkey”, i.e., the number of visits to Turkey in the past 5 years and their duration. In addition, “age of first intensive contact with German” (range = 0–9 years, mean = 3.5, $SD = 2.23$) constituted a fifth measure of language experience, since the age of first intensive contact with the majority language usually goes hand-in-hand with a dominance shift, and less exposure to the HL. These scores were used as predictors in regression modeling, the results of which are reported on in the following section.

3.2.1 Results for study 1

The means, standard deviations, and ranges for Type-Token Ratio (TTR), Morphosyntactic Complexity score (MSC), and the experiential measures are presented in Table 2 below.

Table 2. Descriptives for TTR, MSC & experiential measures (Hamburg group)

Descriptive statistics						
	N	Range	Minimum	Maximum	Mean	Std. deviation
Complexity measures						
TTR	20	15.00	43.00	58.00	52.40	4.07
MSC	20	53.32	7.87	61.19	25.54	15.60
Experiential measures						
T use at home	20	5.00	3.00	7.00	5.67	1.10
Quality of T use	20	4.00	1.00	4.00	3.05	1.02
Current T use	20	5.50	0.00	5.50	2.95	1.49
Time spent in Turkey	20	2.50	0.00	2.50	1.20	0.60
First intensive contact with German	20	9.00	0.00	9.00	3.57	2.23
Valid N (listwise)	20					

Before carrying out regression analyses, we controlled for collinearity of the experiential measures in Table 2 (Turkish use at home, Quality of Turkish use, Time spent in Turkey, First contact with German) variables using the *collin.fnc* function from the languageR package (Baayen, 2008, p. 200). We found medium collinearity with a condition value of 17.38, which suggests these variables are correlated, but not severely.²

2. Following Baayen (2008), condition values that fall between 0 and 6 are regarded as evidence for no collinearity, while values falling around 15 are regarded as medium collinearity and values at 30 or above are regarded as potentially harmful collinearity.

For the TTR, a multiple linear regression with all the independent variables included (First contact with German, Turkish use at home, Quality of Turkish use, Current use of Turkish, Time spent in Turkey) was highly significant ($F(5, 14) = 7.432, p = .005$). A backward stepwise regression was used to identify the variable(s) that best explained the variance in the data. The final reduced model containing variables “First contact with German”, “Turkish use at home” and “Current Turkish use” was statistically significant ($F(3, 16) = 11.778, p < .001$), and captured about 70% of the variance, with only “Turkish use at home” ($p = .001$) and “First contact with German” being significant ($p = .046$). “Turkish use at home” showed a positive relationship with TTR while “First contact with German” showed a small but negative relationship. R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for full and reduced models of dependent variable TTR are given in Table 3 below.

Table 3. R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable TTR

Model	R^2 (Adjusted)	First contact w/German b	Turkish at home b	Quality of use b	Current use b	Time in Turkey b
1	.726 (.629)	-.004	.019*	-.009	.015*	-.011
2	.705 (.627)	-.005	.021*	-.007	.012*	
3	.688 (.630)	-.006*	.023*		.009	

* $p < .05$

For the MSC measure, the full model was not significant, $F(5, 14) = .983, p = .462$. The final reduced model, containing only the independent variable “Current Turkish use” was statistically significant, $F(1, 18) = 4.787, p = .042$, and explained about 21% of the variance. “Current Turkish Use” had a positive effect on MCS ($p = .042$). R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for full and reduced models of dependent variable MSC are given in Table 4 below.

Table 4. R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable MSC

Model	R^2 (Adjusted)	First contact w/German b	Turkish at home b	Quality of use b	Current use b	Time in Turkey b
1	.260 (.005)	1.259	-.570	-2.549	6.648	-4.768
2	.259 (.061)	1.121		-2.303	6.326	-4.523
3	.245 (.103)	1.040			5.263*	-3.934
4	.224 (.132)	.780			4.834*	
5	.210 (.166)				4.651*	

* $p < .05$

3.3 Study 2: Adolescent HSs of Turkish in Munich

The data used for this section of the study were collected as part of Bayram's (2013) PhD dissertation in which he investigated 24 adolescent HSs of Turkish in Germany (mean age = 12.8, range = 10–16). All participants were enrolled in the *Hauptschule* – a five-year upper elementary school in the German system – in Munich and came from a homogenous socio-cultural and economic background.

Before the experiment, an oral background interview was conducted in Turkish by the researcher, and this information was used to quantify the relevant experiential variables (displayed in Table 5 below). These variables were scored in three different categories. The first was 'age of entry into German kindergarten/school' (range = 3–5 years, $M = 3.41$, $SD = .71$). The second was 'literacy engagement', which included experience in the HL itself (half of the bilinguals had attended Turkish schools in Germany and/or Turkey for at least some years), but also 'Transfer from German', which referred to participants who reported being able to read and write in Turkish, but only because they know how to read and write in German. The third point was 'parental language background', i.e., both parents first generation Turkish ($n = 13$), one parent first generation Turkish ($n = 5$), both parents second generation Turkish ($n = 4$), or only one Turkish parent ($n = 2$). Two of the 24 participants had moved from Turkey to Germany as small children (at the age of 4); the rest were born in Germany. The two participants who had just one Turkish parent spoke Turkish at home with their Turkish parent and other Turkish relatives.

Table 5. Experiential variables for Munich group

Experiential factors	Subgroups	Scoring
Age of onset of exposure to German	Age 3	1
	Age 4	2
	Age 5	3
HL Literacy engagement	None	1
	Transfer from German	2
	Training within home	3
	Attendance to Sunday schools	4
Parental background	Only one parent Turkish	1
	Both born in Germany	2
	Only father born in Turkey	3
	Only mother born in Turkey	4
	Both from Turkey	5

In addition to specific experiments probing for knowledge/production of passive and relative clause structures, participants were asked to narrate the “Frog, where are you?” picture story (Mayer, 1969) consisting of 24 individual pictures (see Berman & Slobin, 1994 for a review). The pictures in the task do not provide any language specific cues. However, the task provides a rich visual context for naturalistic language production. The data we focus on herein are the analyzed data from the Frog story task only. It is, however, interesting to point out that Bayram et al. (2017) report a correlation between level of literacy in Turkish of these same HSs and the likelihood that an individual produced passive morphology within a comparative monolingual range in the same elicited production experiment. In fact, in a logistic regression model, individual HSs were up to 16 times more likely to fall into the monolingual range depending on the level of formal Turkish literacy training via Turkish Sunday schools financed by the Turkish government in the European diaspora.

3.3.1 Results for Study 2

The means, standard deviations, and ranges for TTR and MSC are presented in Table 6 below.

Table 6. Descriptives for TTR and MSC (Munich group)

Descriptive statistics						
	N	Range	Minimum	Maximum	Mean	Std. deviation
TTR	24	29.00	39.00	68.00	47.58	6.22
MSC	24	26.47	.00	26.47	7.95	7.53
Valid N (listwise)	24					

For TTR, a multiple linear regression with all the variables included (“Age of onset of German school”, “Parental background” and “Literacy level”) was not significant ($F(3, 20) = 1.488, p = .248$). The final reduced model, containing only the variable “Parental Background” was statistically significant, ($F(1, 22) = 4.810, p = .039$), and explained about 18% of the variance. “Parental Background” had a positive effect on TTR ($p = .039$). The R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for full and reduced models of dependent variable TTR are provided in Table 7 below.

A multiple linear regression for MSC was run which was statistically significant ($F(3, 20) = 4.266, p = .018$). Similar to the case of TTR, the final reduced model, containing only the variable “Parental Background” was statistically significant ($F(1, 22) = 7.853, p = .010$). This model explained about 27% of the variance. “Parental Background” had a positive effect on MSC ($p = .010$). R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for full and reduced models of dependent variable MSC are given in Table 8 below.

Table 7. R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable TTR; R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable TTR; R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable TTR; R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable TTR

Model	R^2 (Adjusted)	Age of onset of German school b	Parental background b	Literacy level b
1	.183 (.060)	-.00093	.0189*	-.00301
2	.182 (.105)		.0188*	-.00305
3	.179 (.142)		.0184*	

* $p < .05$

Table 8. R^2 , Adjusted R^2 values and unstandardized regression coefficients (b) for dependent variable MCS

Model	R^2 (Adjusted)	Age of onset of German school b	Parental background b	Literacy level b
1	.390 (.299)	-3.024	2.967*	-1.311
2	.353 (.291)	-3.151	2.799*	
3	.263 (.230)		2.704*	

* $p < .05$

4. Discussion and conclusion

This study set out to investigate the relative ability of various experience-related variables to predict two measures of proficiency in HL Turkish across two different age groups: young adults and adults. The datasets are comprised of distinct sets of HSs, and direct comparisons between these datasets are therefore not possible due to the differences in the modality of testing, and due to the different age groups of the participants. Nonetheless, the following trends emerge: For both groups, language use in the home matters the most. “Parental language background” had a positive influence on both the vocabulary (TTR) and morphosyntax (MSC) measures for the participants from the Munich dataset; for the Hamburg dataset, “Turkish Use at Home” had a positive influence on TTR, and “Current Turkish Use” had a positive influence on MSC. In addition, “age of first intensive contact with German” had a slight negative impact on TTR for the Hamburg dataset, which seems to suggest that a later introduction of the majority language confers benefits in the vocabulary size of adult HSs. This interpretation would be in line with other findings that show benefits of longer exclusive exposure to the HL in early childhood (e.g., Flores, Santos, Marques, & Jesus, 2016, for mood selection in the HL).

The analyses also raise some interesting questions. For example, it may seem unexpected that the language quality measures (“literacy level” for the Munich group and “years of Turkish schooling” for the Hamburg group) did not predict any variation in performance for either the TTR or the MSC measure. This is especially surprising when considering that the very same literacy measure positively predicted the adolescent HSs’ ability to produce passive constructions in Turkish (Bayram et al., 2017). On the other hand, the modality of testing between Bayram et al. (2017) and the current study is different, and it is possible that facilitative effects of literacy exposure are more directly visible in language competence measures that target the use of academic language – such as passive constructions – under controlled experimental environments, rather than more general measures of proficiency in naturally occurring speech as is the case here. Another observation is that these results seem to support the view that in early bilingual development language experience has a strong effect on lexical development and proficiency while grammatical proficiency is less susceptible to input factors (Pearson et al., 1997; Paradis & Genesee, 1996). It also matches the intuition that the lexicon is more variable and heterogeneous across learners than grammar is. While the lexicon is potentially infinite and acquired throughout the lifespan for monolinguals and bilinguals alike (i.e., the greater and more varied the experience with a language is, the greater the lexical knowledge in that language), grammar (in terms of available, unique structures) is finite and governed by innate mechanisms. That said, as we only have access to variables to regress in our statistical analyses that happen to have been recorded because we are retrofitting older data, it is possible that we simply have access to variables that correlate better to issues of lexis.

In summary, the factors discussed here, i.e., the language of the parents, literacy, current use patterns, HL use at home, age of exposure to German, all interact with HL proficiency to various degrees – though “language use at home” was the strongest predictor across both groups. While “parental background” was found to be important for the adolescent HS, “current language use” was more important for the adult HS group. These observed differences between the two groups highlight the need to consider the effects of input-related variables may change across the lifespan. Not only that, but different areas of language are affected differently: While lexical and morphosyntactic proficiency correlated better with language use in the home, access to literacy in the HL was found to be a better predictor for the ability to construct passive sentences in Turkish.

To be sure, this study far from offering a complete answer or methodology to understanding HL development and its outcomes. Rather, it showcases a step toward a research program that aims to move beyond assumptions about HS populations, and to acknowledge and systematically investigate which variables of language experience can predict, along a continuum, where HSs will sit. Currently,

only few studies on HL outcomes have made use of more sophisticated techniques of analysis, such as linear regression, to better understand the effects of background variables on outcomes (Bayram et al., 2017; Gharibi & Boers, 2017; Schmid & Karayayla (2019)). As mentioned earlier, there exist no standardized questionnaires – to our knowledge – that permit the systematic assessment of different exposure-related variables across the lifespan on outcomes in adult HL grammars. This study has been an attempt to survey what such correlates could be, and ideally needs to be followed up by a study with a larger HS population to better understand the interplay of these individual factors and the outcomes that they predict. This could be done, e.g., by means of a factor analysis along the lines of that implemented in Luk & Bialystok (2013) and Anderson et al. (2018) for the LSBQ. The common thread here is that, with fewer opportunities, HSs will resemble monolinguals less on the surface, though they might have universally-complying, complex grammars worthy of formal description in their own right. Future methodologies involving intra-group analyses will permit more ecologically-valid characterizations of HL outcomes and, hopefully, in the long term, allow us to make predictions about where along the HL continuum HSs will sit.

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PART II

Morphosyntax

Convergence in the encoding of motion events in heritage Turkish in Germany

An acceptability study

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The encoding of motion is a particularly interesting domain of German-Turkish language contact. German is a “satellite-framed language” that easily combines manner-of-motion verbs with path expressions outside of the verb stem. Turkish, on the other hand, is considered a “verb-framed language”, where the combination of semantically heavy manner-of-motion verbs with path expressions does not occur. In a sentence acceptability study with monolingual Turkish and bilingual German-Turkish students, we tested the acceptability of Turkish sentences which violate the canonical Turkish structure to different degrees. Bilingual Turkish-German speakers more readily accepted combinations of semantically heavy manner-of-motion verbs and path expressions than the monolingual Turkish speakers. The difference did not show in combinations of semantically light manner-of-motion verbs and Path devices. We conclude that we cannot speak of ad-hoc transfer or a general “insecurity” in the Turkish of Turkish-German bilinguals. Rather, the results show evidence for the development of new grammatical patterns in heritage Turkish in Germany, influenced by the characteristic encoding patterns of German.

Keywords: motion events, satellite-framed languages, verb-framed languages, language contact, Turkish, German, Turkish-German bilinguals, acceptability study, linear mixed effects analysis

1. Introduction

Since Johanson’s (1991) seminal article, there has been discussion over whether, within the Turkish-speaking community in Germany, new grammatical patterns of Turkish are evolving induced by intense contact between German and Turkish in multilingual settings. One potential area of contact phenomena is the encoding of motion (cf. Daller, Treffers-Daller, & Furman, 2011; Goschler, 2009, 2013; Goschler,

Woerfel, Stefanowitsch, Wiese, & Schroeder, 2013; Schroeder, 2009; Woerfel, 2018a). According to Talmy's typological distinction between verb-framed and satellite-framed languages (Talmy, 1985, 2003, 2008), German is a satellite-framed language and thus prefers the expression of the change of location (Path) of a moving entity (Figure) outside of the verb stem, typically in particles and/or prepositional phrases. Turkish is considered a verb-framed language where Path is typically expressed in the main verb. Verb-framed or V-languages usually avoid the combination of manner-of-motion verbs with so-called Path satellites. And indeed, although Turkish provides numerous directional Path devices that express Path outside the verb stem and can be combined with Manner verbs as in (1), the construction similar to that of German (see (2)) in (3) is not typical in Turkish as spoken and written in Turkey. If accepted at all in the Turkish of Turkey, it would be understood in an atelic reading, i.e. a reading, in which the Figure does not cross a spatial boundary.

- (1) *Köy-e doğru yürü-dü.*
village-DAT towards walk-PST(3SG)
'S/he walked towards the village.'
- (2) *Sie hüpf-te in-s Haus.*
she hop-PST.3SG in-DET house
'She hopped into the house.'
- (3) *Ev-e hoplu-yor.*
house-DAT hop-PRS(3SG)
'S/he hopped to the house.'

It is assumed that such typical satellite constructions are limited to motion events which specify the location in which the activity takes place and cannot be used in motion events with boundary focus (Slobin & Hoiting, 1994).

In this study, we investigate whether and in which way the acceptance of the latter construction is rising in the Turkish speaking community in Germany. Through this we aim to contribute to the ongoing discussion around the locus of change in heritage languages between "language contact" and "incomplete acquisition".

2. Motion events in Turkish and German

Turkish is a verb-framed language that usually encodes the Path of motion in the verbal stem. The Ground (the location with respect to which the Figure moves), Source (the initial position of the Figure) or Goal (the direction or final position of the Figure) of the motion event is typically expressed through an NP that is an object of the verb. Manner of motion is often not expressed at all (Özçalışkan & Slobin, 1999, 2000), but if it is, this typically happens by the use of a converb or adverb (see (4)).

- (4) *Koş-arak ev-e gir-di.*
 run-CVB house-DAT enter-PST(3SG)
 Manner Goal Path
 “S/he ran into the house.” (lit.: “S/he entered the house running.”)
 (Schroeder, 2008, p. 355)

Typical satellite constructions with a manner-of-motion verb and a directional Path device are possible, but are generally limited to “locative Path phrases” (Aske, 1989, p. 6) with a non-defined endpoint (see (5)), or with a defined endpoint (a proximity to a Ground) (see (6)).

- (5) *Yokuş aşağı kayı-yor.*
 hill down slide-PROG.3SG
 ‘S/he is sliding down the hill.’ (Özyürek & Kita, 1999, p. 510)
- (6) *Duvar-a kadar yürü-dü-m.*
 wall-DAT as far as walk-PST-1SG
 ‘I walked as far as the wall.’ (Turkish National Corpus DA16B4A-3349)

There are certain verbs which require a directional specification, such as verbs encoding a vertical downwards direction where the Cause of movement is unintentional (*yuvarlanmak* ‘to roll’), or verbs encoding direction without specifying the vertical direction (e.g., *atmak* ‘to throw’, *koşmak* ‘to run’) (Schroeder, 2008). In addition, Woerfel (2018b) shows that in written Turkish such combinations rather occur as collocations (such as *doğru yürümek* ‘to walk straight/toward’, *aşağı yuvarlanmak* ‘to roll down’) than as a productive satellite-framed pattern. However, semantically heavy manner verbs (verbs with a higher semantic specificity, such as *hoplamak* ‘to hop’) cannot be freely combined with telic Path elements (such as *içeri* ‘inside’):

- (7) **İçeri hopla-dı.*
 inside hop-PST(3SG)
 Goal Manner
 ‘S/he hopped in.’

This is, in general, not unusual for verb-framed languages (cf. Beavers, Levin, & Wei Tham, 2010, p. 348f. for French, Spanish and Japanese) but in Turkish it is a rather strict constraint.¹ Generally, the encoding of such boundary-crossing events

1. Note that Talmy’s clear dichotomous typology has been questioned by many scholars; when looking more closely at the possible motion event encoding within languages, there is evidence for more variation than Talmy assumes: some languages are considered as V-languages (e.g. Aragonese, Italian, Basque, French, Turkish) but also include so called (pseudo)-satellite constructions (Ibarretxe-Antuñano & Hijazo-Gascón, 2012, p. 351). For a more thorough description of Turkish and its possible variation see also Aksu-Koç (1994), Schroeder (2008, 2009), Woerfel (2018a, 2018b).

“imposes the tightest linguistic constraints in the expression of motion events” (Özçalışkan, 2013, p. 2). In Turkish, as in other verb-framed languages, Manner verbs cannot encode a figure’s crossing of a spatial boundary. Consequently, speakers are forced to use a Path verb and express Manner in an additional element (see (4) above). However, Slobin and Hoiting (1994) claim that when the Figure performs some physically very rapid (*atlamak* ‘to jump’), uncontrolled (*düşmek* ‘to fall’), or instantaneous motion (*dalmak* ‘to dive’), the combination of Manner verbs with telic Path elements is commonly employed in verb-framed-languages as well (see (8)).

- (8) *kedi çöp-ler-in için-e düş-üyor*
 cat trash-PL-GEN inside-DAT fall-PROG(3SG)
 Figure Goal Path Manner-Path
 “The cat falls into the trashes” (Woerfel, 2018a, p. 275)

Thus, in the verb-framed language Turkish, we can speak of a distinction between semantically light Manner verbs, which allow for a combination also with telic Path satellites, and semantically heavy manner-of-motion verbs, probably the larger group, which do not allow for such a combination.²

In contrast to Turkish, German is a satellite-framed language: manner of motion is typically encoded in the verb stem. Path as well as Ground, Source and Goal is usually expressed through a verb particle and/or a prepositional phrase, and the Path has the tendency to be finer grained than in Turkish.³ Note that there are no constraints in German (nor in other satellite-framed languages) as regards the use of locative Path phrases with a non-defined endpoint, with a defined endpoint, or in a boundary crossing.

- (9) *Sie rannte in-s Haus hinein.*
 she run.PST.3SG in-DEF house.ACC into (DEICTIC)
 Figure Manner Goal Path
 “She ran into the house.”

German also has the constructional means to express motion in a verb-framed pattern. However, this is rather unusual, and the inventory of Path-encoding verbs

2. Slobin (1997, p. 459) refers to a “two-tiered” lexicon in verb-framed languages. There are neutral, everyday manner-of-motion verbs, and more expressive ones. We prefer the distinction light vs. heavy to emphasize the role of the verb semantic which is assumed, too, determinant for the combinability of motion verbs with Path satellites.

3. See (9), where the Path *hinein* ‘thither in’ actually consists of two Path elements, namely *hin* ‘thither’, which indicates a movement away from the speaker, and *ein* ‘in’, which gives the conformation of the boundary crossing into the room (Daller, Treffers-Daller, & Furman, 2011, p. 97).

is very small (in fact, most of these are complex, in that they contain a preverbal Path element, like *über-queren* ‘to cross’ or *be-treten* ‘to enter (walking)’).⁴

The typical patterns of verb-framed and satellite-framed languages have an effect on speakers’ preferences: it has been shown that speakers of satellite-framed languages are more likely to include information on Manner of motion in their descriptions of a motion event (Slobin, 1996a, 1996b, 2004), and it has even been argued that they pay more attention to Manner of motion due to an effect of “thinking for speaking”.

Since bilingual Turkish-German speakers are familiar with both patterns, it could be expected that the patterns they prefer for encoding motion events are influenced by their bilingual resources. A number of studies indeed show effects on the expression of motion events in German by Turkish-German bilinguals: Schroeder (2009) shows that Turkish-German bilinguals’ written German stylistically resembles their L1 Turkish, especially patterns typically used in spoken Turkish: they avoid Path satellites in combination with manner-of-motion verbs; if additional Path satellites are used, the bilinguals prefer generic motion verbs like *kommen* ‘to come’ and *gehen* ‘to go’; they also avoid manner-of-motion information in combination with directed motion events (Schroeder, 2009, p. 191ff.). Goschler’s (2009) results point into a similar direction: in a study on spoken elicited narratives, Turkish-German bilingual children used fewer Path satellites in the form of prepositional phrases than monolinguals. Woerfel’s study on the spoken elicited re-narrations of Turkish-German bilingual children suggests an influence of Turkish which is evident in the systematic use of generic verbs in boundary crossing events, the convergence of Turkish and German motion constructions as well as a paratactic organization of motion events (Woerfel, 2018a). Goschler et al. (2013) look at a German contact variety spoken by young people in multiethnic and multilingual urban areas of Germany, many of whom are Turkish-German bilinguals. The data, based on informal spoken conversations, show differences between bilingual Turkish-German and monolingual German speakers in their preference for generic motion verbs over Manner verbs for Turkish-German and the usage of fewer Manner verbs with Path satellites by the bilinguals.

Although all four of these studies observe differences between German monolingual and Turkish-German bilingual speakers when using German, the effects are rather weak and depend on mode (spoken vs. written) as well text type (narrative vs. dialogue). A possible explanation for these weak effects could be that the convergence taking place is twofold, that is, in the direction of the Turkish

4. In this respect, German differs from English that borrowed a set of Path verbs from Romance (*ascend/descend, enter/exit*), all of which are alternatives to the native verbs in combination with particles (*go up/go down, go in/go out*) (Stefanowitsch, 2013).

patterns in the bilinguals' German, and, vice versa, in the direction of German patterns in their Turkish. If this were the case, it could be expected that over some decades, there could be a development within the Turkish-German speech community in Germany towards patterns that are unusual, rare, or even ungrammatical in Turkish as spoken and written in Turkey. In this case, "transfer" from this new Turkish variety to German is less likely to produce usage patterns untypical for German.

In order to evaluate this explanation, it is necessary to look at usage patterns of Turkish-German bilinguals in Turkish. Daller et al. (2011) compare the encoding of motion events by bilingual Turkish-German speakers in Germany with those of Turkish-German bilingual returnees to Turkey, and argue that the surrounding language with its dominant pattern influences speakers in their encoding preferences – no matter which language they actually use. Thus, Turkish-German bilinguals in Turkey use the Turkish pattern more when speaking Turkish or German. Bilinguals in Germany behave the other way round: they prefer the German, satellite-framed pattern when speaking Turkish or German.⁵ In addition, Woerfel (2018a) found an impact of German on the Turkish motion descriptions of Turkish-German bilingual children living in Germany, such as a higher usage of Manner verbs as well as Manner verb+Path device constructions and violations of the boundary-crossing constraint. These results are compatible with the assumption that there could be a new grammatical development in the Turkish variety in Germany. In order to add quantitative evidence to this assumption, we conducted a study based on acceptability ratings to test the assumption of different pattern preferences between Turkish in Turkey and Turkish in Germany.

3. German-Turkish language contact

Turkish is a pervasive heritage language in Germany.⁶ Not only is it frequently heard in urban areas but it can also be seen displayed on shop signs, posters and announcements. Moreover, Turkish is present in media, not only in the form of

5. The differences between the two groups of bilinguals were not always statistically significant but showed the predicted tendencies.

6. We lack reliable data with regard to the number of speakers of Turkish in Germany. According to the data of the microcensus (Statistisches Bundesamt, 2017), in 2015, a total of about 2.9 million people lived in Germany (i) with Turkish citizenship, who have immigrated to Germany; (ii) who are born in Germany and have Turkish citizenship; (iii) who are German citizens of Turkish origin. However, the relationship between citizenship or naturalization and language use is difficult to determine.

newspapers and books, but also on various radio and TV stations that broadcast in Turkish. To a rather limited extent, it is also a school subject and is learnt as both a heritage language (German *Herkunftssprache*) and a foreign language (see Küppers, Şimşek, & Schroeder, 2015 for a recent overview).

The history of the spread and use of Turkish in Germany is relatively recent: its beginnings can be dated to the intensification of labor migration from Turkey to Germany starting with the bilateral recruitment agreement between Germany and Turkey in 1961. Today, there are third-generation families of Turkish origin in Germany. The generations are not to be understood as a simple linear sequence: in the biographies of the second, and sometimes even the third generation, we often find a stay of several years in Turkey; that is, children live with a parent or with relatives for some time in Turkey, sometimes before they start school or sometimes even at certain stages during schooling. Even after the expiry of the recruitment agreement in 1973, new immigration from Turkey continued unabated, initially within the scope of family reunification. Today, it is mainly through marriage migration, and in the 1980s and 1990s immigration was also a consequence of the civil war in the Kurdish areas of Southeast Turkey. Thus, contact between speakers of Turkish in Germany and those in Turkey is continuing in a German-Turkish transnational space (Küppers et al., 2015).

Language acquisition of Turkish in Germany obviously begins within the family. Later on it expands in interactions within the network of Turkish relations and acquaintances and – depending on the local conditions – also in shops, on the street, at the market and passively through the media. Turkish in Germany is therefore initially and conceptually oral; moreover, it has been in close contact with German from the very beginning. Speakers of Turkish usually acquire German as an early second language at kindergarten, through their German-speaking environment, from their elder siblings and from the media. At the latest by the time the children start school, they start to acquire the formal register of German, and German usually develops into their dominant language in the formal register.

The language contact situation has led to consequences with regard to the path of acquisition of Turkish,⁷ including literacy acquisition, which in turn have led to structural changes in the language system (see below). Moreover, there are differences in terms of repertoire, as speakers can draw from a continuum between monolingual mode in both languages and different degrees of language mixing and bilingual modes.

Linguistic differences between monolingual speakers of Turkish (in Turkey) and bilingual speakers in Germany have been reported by several studies, concentrating

7. See Reich (2009) for a concise overview.

on various linguistic levels: phonetics/phonology (cf. Queen, 2001, 2006); morphology/syntax (cf. Boeschoten, 1990; Dođruöz & Backus, 2009; Küppers et al., 2015; Pfaff, 1993; Schroeder, 2014, 2016; Şimşek & Schroeder, 2011; Türker, 2005); lexicon (cf. Pfaff, 2000; Şimşek, 2012); and literacy (Dirim, 2009; Schroeder, 2007; Schroeder & Dollnick, 2013; Schroeder & Şimşek, 2010). However, many of the phenomena reported are only attested for children who are still at the acquisition stage, and observations are mostly based on the analysis of a small number of speakers. Since evidence of use in adult speech and the distribution of these deviations is largely missing, none of them can as of yet be considered stable features of heritage Turkish in Germany.

Another challenge is that of the theoretical implications of the identified dynamics of contact and change. There are, basically, two opposing frames within which to interpret the findings. One is the recent heritage language research that considers changes in these languages to be a result of incomplete acquisition.⁸ The other, advocated by Rehbein, Herkenrath & Karakoç (2009) and Matras (2007), and in line with usage-based accounts of language contact, is to see dynamics of convergent change at work. This results from the fact that bilingual speakers receive input from two languages and have a “pool” of resources from two languages at their disposal that are co-active. In this bilingual situation structures occurring in both languages are preferred and expanded if they correspond structurally and functionally. Clearly, the selection of preference is triggered also by dominance relations between the two languages and/or between register varieties of the languages.

4. Turkish and Turkish-German speakers’ reactions on satellite-framed patterns in motion sentences

4.1 Aims and methods

The aim of this study is to test whether Turkish speakers in Turkey and Turkish speakers in Germany show differences in their acceptance of sentences encoding motion events. Since there is a typological difference between German (satellite-framed) and Turkish (verb-framed), certain constructions are acceptable in German but not in Turkish. We expect Turkish speakers living in Germany to be more willing to accept Turkish sentences that follow the typical German satellite-framed pattern of

8. For a general discussion see Montrul (2008), Polinsky (2006), as well as for Turkish Bayram (2013) and Arslan, De Kok, & Bastiaanse (2017). Note that in the heritage language approach, “heritage language” is used as a term for what in other research is called a migrant or allochthonous minority language.

motion event encoding, in comparison to the Turkish speakers in Turkey who we expect to reject sentences of the satellite-framed pattern. In particular, we expect differences of acceptance in the area of semantically heavy manner-of-motion verbs and telic or boundary-crossing Path phrases. If this hypothesis could be confirmed, this would be empirical evidence for convergent change in the expression of motion events in heritage Turkish in Germany.

4.2 Subjects

43 bilingual Turkish-German speakers living in Germany (age = 23.2, range = 18.3–28.6) were tested. As a reference group, 40 monolingual speakers of Turkish born and still living in Turkey were recruited (age = 22.5, range = 18.4–46.6).⁹ The bilingual participants were mostly all born in Germany; two participants were born in Turkey and migrated to Germany before they were one year old. They all grew up bilingually since they had first exposure to Turkish from birth on, and to their L2 German during their first five years of age. Most of the bilingual participants were university students at the University of Munich, the University of Potsdam, or one of the universities of Berlin; most of the others already had a university degree. The monolingual Turkish subjects were students of the Dokuz Eylül University of Izmir. All of the participants had moderate knowledge of English as a Foreign Language.¹⁰

4.3 Material

Subjects were asked to rate the acceptability of given Turkish sentences on a scale of four: *Kesinlikle söylenir* ‘it can certainly be said’, *Söylenebilir* ‘it can be said’, *Tam olarak söylenmez* ‘it cannot quite be said’, and *Tamamen yanlış* ‘totally wrong’.

There were 24 critical items. These were simple sentences encoding motion events. Since we wanted to test if there is a general avoidance of the typical satellite-framed pattern combining a manner-of-motion verb with a linguistic device encoding the Path of motion, or rather a more specific rejection of semantically heavy manner-of-motion verbs with linguistic devices encoding a telic and/or boundary-crossing Path, we systematically varied verb type (semantically heavy vs. semantically light, see the discussion above) and the telicity of the directional Path device (encoding a non-defined endpoint, a defined endpoint or a boundary

9. Three participants did not indicate their date of birth in the questionnaire. Note that the age range is so broad because we included one participant who was much older (46 years).

10. We are grateful to Yasemin Can, Elif Güney and Burcu Polat who assisted in the data collection in Potsdam/Berlin, Munich and Izmir, respectively.

crossing). We thus crossed these two independent variables: telicity of the linguistic device (on three levels) and verb type (on two levels). Based on a corpus sample of the Turkish National Corpus (TNC; Aksan et al., 2012), we chose the two most frequent manner-of-motion-verbs for each of the two levels,¹¹ as well as two linguistic devices for each category. This yielded the following combinations of verbs and linguistic devices (cf. Table 1):

Table 1. Combinations of verbs and linguistic devices included in the study

Telicity	Semantically light manner-of-motion verb	Semantically heavy manner-of-motion verb
<i>Atelic</i> (Non-defined endpoint)	<i>yürüme</i> <i>yol kenarından</i> to walk from the roadside <i>yürüme</i> <i>nehir kenarından</i> to walk from the riverside <i>koşma</i> <i>yol kenarından</i> to run from the roadside <i>koşma</i> <i>nehir kenarından</i> to run from the riverside	<i>yuvarlanma</i> <i>yol kenarından</i> to roll from the roadside <i>yuvarlanma</i> <i>nehir kenarından</i> to roll from the riverside <i>hoplama</i> <i>yol kenarından</i> to hop from the roadside <i>hoplama</i> <i>nehir kenarından</i> to hop from the riverside
<i>Telic</i> (with defined endpoint)	<i>yürüme</i> <i>duvara kadar</i> to walk as far as the wall <i>yürüme</i> <i>ağaca kadar</i> to walk as far as the tree <i>koşma</i> <i>duvara kadar</i> to run as far as the wall <i>koşma</i> <i>ağaca kadar</i> to run as far as the tree	<i>yuvarlanma</i> <i>duvara kadar</i> to roll as far as the wall <i>yuvarlanma</i> <i>agaca kadar</i> to roll as far as the tree <i>hoplama</i> <i>duvara kadar</i> to hop as far as the wall <i>hoplama</i> <i>ağaca kadar</i> to hop as far as the tree
<i>Telic</i> (with boundary-crossing)	<i>yürüme</i> <i>salonun içine</i> to walk inside the saloon <i>yürüme</i> <i>evin içine</i> to walk inside the house <i>koşma</i> <i>salonun içine</i> to run inside the saloon <i>koşma</i> <i>evin içine</i> to run inside the house	<i>yuvarlanma</i> <i>salonun içine</i> to roll inside the saloon <i>yuvarlanma</i> <i>evin içine</i> to roll inside the house <i>hoplama</i> <i>salonun içine</i> to hop inside the saloon <i>hoplama</i> <i>evin içine</i> to hop inside the house

These were used as a basis to form simple sentences that served as the critical items. In order to make the aim of the study less obvious for the subjects and keep them from trying to meet our predictions or to contradict the (assumed) hypothesis on

11. The corpus analysis is based on a random sample of 2500 entries in the TNC (latest access 30 March 2017, see <<https://v3.tnc.org.tr>>) and includes only finite verbs in the present, future and the past tense. The two most frequent semantically light Manner verbs were *yürüme* ‘to walk’ and *koşma* ‘to run’, while the most frequent heavy Manner verbs turned out to be *yuvarlanma* ‘to roll’ and *hoplama* ‘to hop’.

purpose, 32 distractor items were presented in an alternating pattern. The distractor sentences were Turkish sentences consisting of a simple main clause, half of them grammatically correct (e.g., (10)), the other half grammatically incorrect (e.g., (11)). Regarding length and complexity, they were similar to the critical items.

- (10) *Masa-nın alt-ın-a valiz koy-uyor*
 table-GEN under-POSS-DAT suitcase put-PROG(3SG)
 ‘S/he is putting the suitcase under the table’
- (11) **Onun sev-iyor.*
 he/she/it.GEN love-PROG(3SG)
 *‘His/her loves’

4.4 Results

We performed a linear mixed-effects analysis of the relationship between Turkish mono- and Turkish-German bilingualism, telicity, and verb type. In order to avoid the language-as-a-fixed-effect fallacy (Clark, 1973), we used both subjects and items as random effects (Baayen, Davidson, & Bates, 2008). Telicity and verb type (without interaction term) were entered into the model as fixed effects. P-values were obtained by likelihood ratio tests with Kenward-Roger approximation for degrees of freedom. Post-hoc comparisons for the entire sample were carried out using Tukey-adjustment. Visual inspection of residual plots did not reveal any obvious deviations from homoscedasticity or normality of residuals. Statistical tests confirmed this too (Shapiro-Wilk test, $W = 0.9987$, n.s., Kolmogorov-Smirnov test, $D = 0.0169$, n.s.).

For the entire sample, the main effect of mono- vs. bilingualism was significant when both subjects and items were included as random effects in the model ($\beta = 0.34$, $SE = 0.12$, $T = 2.85$, $p < 0.05$ ($\chi^2(1) = 8.12$, $p < 0.01$, Type II Wald chi-square test), indicating that Turkish monolingual subjects behaved differently from bilingual Turkish-German subjects, and they did so in the predicted direction. The main effect of verb type was also significant ($\beta = -0.52$, $SE = 0.11$, $T = -4.99$, $p < 0.001$ ($\chi^2(1) = 24.87$, $p < 0.001$, Type II Wald chi-square test). Telicity also yielded a significant main effect, as revealed by a Type II Wald chi-square test ($\chi^2(2) = 29.49$, $p < 0.001$).

As displayed in Figure 1, the crossing of the two independent variables gives rise to 6 categories (verb type has two levels, Telicity has 3 levels). In order to investigate the main effect of country in the ‘atelic > light’ and the ‘boundary-crossing > heavy’ sub-samples, we ran two linear mixed-effects models separately on these two sub-sets of the entire sample. Since we had these two planned comparisons, p -values were adjusted using the Bonferroni-correction (α -level was set to 0.025). No difference was revealed between the scoring patterns between the two countries

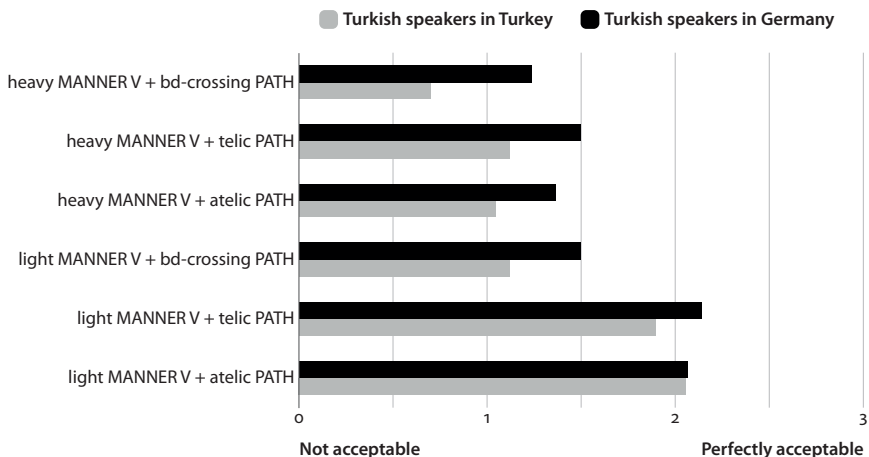


Figure 1. Acceptance rating of patterns

in the set of atelic > light verbs ($\beta = 0.02$, $SE = 0.14$, $T = 0.17$, n.s.). However, we revealed a statistically significant difference between the two speaker groups in the case of ‘boundary-crossing > heavy’ verbs ($\beta = 0.56$, $SE = 0.15$, $T = 3.82$, $p < 0.001$, Bonferroni-corrected).

Thus, our hypothesis is corroborated: on average, bilingual Turkish-German speakers found combinations of semantically heavy manner-of-motion verbs and telic or boundary-crossing Path phrases more acceptable than monolingual Turkish speakers. In contrast, the two groups did not differ in their acceptability ratings of combinations of semantically light manner-of-motion verbs and atelic Path expressions.

5. Discussion

Bilingual Turkish-German speakers in Germany tend to behave differently from monolingual Turkish speakers in Turkey regarding the willingness to accept Turkish sentences encoding motion events using a typical German pattern. However, the differences were due to different ratings of sentences that combined semantically heavy manner-of-motion verbs with telic and boundary-crossing Path-phrases. This shows that it is not a general preference or avoidance of the pattern that differs between the two groups. Instead, it confirms that there is a weakening of a constraint of Turkish among the Turkish-German speakers in Germany. Our results do not suggest ad-hoc transfer or even a general “sloppiness” or “insecurity” of the bilingual speakers, but a tolerance towards a pattern that is more constrained in Turkish as used in Turkey.

However, there are at least two problems with our method: First, acceptability rating is not natural linguistic behavior, so conclusions on speakers' strategies in encoding motion events in authentic contexts can only be drawn tentatively. Still, there is a clear statistically significant effect of bi- vs. monolingualism even when the factor of subject is considered in the linear mixed-effects model.¹² However, it would be good to add more evidence from natural-language data here and the new RUEG corpus offers broad perspectives here (see Wiese et al. 2020). Second, we constructed the items systematically, taking frequency measures of the verbs into account, choosing the most frequent verbs of each category in order to avoid familiarity/unfamiliarity effects. Thus, we constructed the critical items around two verbs – one might argue that it would be better to include more different verbs. However, even with only two verbs we could not control for collocations that could have a similar effect on the ratings. This problem would amplify using more different verbs, not to speak of the necessity to have a much longer questionnaire in order to include all systematically varied variables, which would lead to other unwanted effects in the subjects. Since our statistical analysis took this into account with a by-item analysis, we can be rather sure that the observed effects are not only due to biases in the critical items themselves. However, it would be good to add more evidence based on other sentences and natural language data as well. The problem of a lack of available corpora applies here, too.

6. Conclusion

How then to interpret our findings in the light of the discussion about the nature of linguistic differences in the use of Turkish between monolingual speakers in Turkey and bilingual speakers in Germany? The participants in our study did not just show a higher variance with regard to their judgement of this constraint, they showed a clear tendency in the form of the weakening of a particular constraint. The constraint belongs to the encoding of motion events, and the contact language German does not show such a constraint in this domain. Above we hinted at the discussion between the “incomplete acquisition-approach” and the “convergence approach”. The regularity of the pattern we find leads us to argue that the encoding of motion events in Turkish in Germany is subject to convergent change: The existing parallel between Turkish and German in the encoding of motion events, i.e., the freedom to combine light Manner verbs with Path devices, is enlarged also to heavy Manner

12. We also statistically tested whether the participants were biased by the sequence of test items, which was not the case: participants were not better at recognizing “unusual patterns” for test items that occurred later on in the questionnaire.

verbs with Path devices of a defined endpoint or involving boundary crossing in Turkish in Germany. Thus, parallels with German, where no such constraint exist, are enlarged, in opposition to Turkish in Turkey, where such constraint continues to exist. The regularity of the patterns we found can be considered a piece of evidence for the development of a Turkish variety in Germany, which shows convergence with German in certain grammatical areas – here the extent to which Manner verbs can be combined with Path devices. What is important is that we identify these convergences in a grammatical domain where certain correspondences already exist, which are then enlarged and stabilized in the dynamics of convergence. How things appear in areas where convergence is not an option, because the contact language does not offer a correspondence, is a different matter.

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First language exposure predicts attrition patterns in Turkish heritage speakers' use of grammatical evidentiality

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This chapter reports on a preliminary study examining the production of grammatical evidentiality forms in narrative speech samples elicited from heritage language speakers (HLS) of Turkish. Turkish grammatically marks direct and indirect sources of evidence one has for their statement. We explored (1) how Turkish HLS use evidentiality marking as compared to monolingual Turkish speakers, and (2) which factors predict their performances in producing evidentiality. Our findings showed that the HLS made a large number of contextually inappropriate substitutions by using direct evidentials in places where an indirect evidential would be used, and that this pattern is largely predicted by the amount of self-reported exposure to the first (heritage) language in daily life.

Keywords: evidentiality, narrative speech, heritage language speakers, Turkish-Dutch bilingualism

1. Introduction

This chapter examines the appraisal of grammatical forms for evidentiality, the marking of information sources, in narrative speech production of heritage language speakers (HLS) of Turkish in the Netherlands. HLS are often referred to as early bilingual individuals (either simultaneous or sequential) who have acquired a minority language in family contexts and a majority society language at school (Benmamoun, Montrul, & Polinsky, 2013; Rothman, 2009). Particularly those HLS who grow up under immigrant language conditions gradually lose competence in

their first language¹ vocabulary and grammar, as their society language becomes more dominant in time. This pattern of language development is common among Turkish HLS in the Netherlands who often face unstable bilingualism conditions where the majority society language (i.e. Dutch) grows dominantly in use over their Turkish (e.g., Backus, 2004, 2013; Dođruöz & Backus, 2009; Sevinç, 2016). Turkish HLS are second generation immigrants, and some of these HLS may, in fact, reach a monolingual-like sensitivity in their first language use while some others begin to deviate from this sensitivity, unlike their monolingual peers. Variability in HLSs' linguistic outcomes has been shown to be influenced by a number of societal factors (see e.g., Backus, 2013; Bezioglu-Goktolga & Yagmur, 2018; Extra & Yađmur, 2010). This chapter, however, particularly examines aspects of subtractive bilingualism in Turkish HLS with a focus on factors relating to the first language input, building upon studies that showed non-target-like attainment in certain grammatical structures of the first language in HLS that may be incompletely acquired (e.g. Montrul, 2008) or attrited after full acquisition (Polinsky, 2011).

Recent studies, using narrative speech tasks, have indicated that inflectional morphology and referring expressions are particularly susceptible in HLSs' first language performance. For instance, using both elicited narrative speech and grammaticality judgement tasks, Montrul (2002, 2009), showed that Spanish adult HLS are less sensitive to aspectual (Preterite-Imperfect) and modal (Subjunctive-Indicative) distinctions than monolingual Spanish speakers. Albirini, Benmamoun, and Chakrani (2013) showed that adult Arabic HLSs' production performances of gender and number agreement in narratives fall behind Arabic monolingual adults. Polinsky (2006, 2008) reported that Russian adult HLSs' uses of case, tense-aspect, and agreement morphology differ from the monolingual baseline and that HLS tend to use shorter utterances which contain reduced syntactic complexity and restricted diversity of lexical choices. Jia and Paradis (2015) found that Mandarin heritage speaking children use a reduced number of referring expressions, such as indefinite determiners and possessive constructions, as compared to monolingually developing children.

There are three different explanations as to why adult HLSs' language outcomes differ from monolingual speakers. First, the incomplete acquisition account holds that heritage language grammar acquisition is disrupted in early bilingual HLS, and consequently, in adulthood, the heritage language grammar has gaps in knowledge in comparison to monolingual language development, possibly due to reduced

1. Please note that in this chapter the term first language is used synonymously with heritage language or home/family language (i.e. Turkish), in other bilingualism settings, however, first language may not necessarily be the heritage language.

input conditions (see Montrul, 2008, 2015 for discussion). According to a second view, however, any gaps or insensitivity in the final state of HLSs' grammatical knowledge of their heritage language are results of attrition. That is, certain structures in heritage grammars are fully acquired in childhood and then attrited later in life. Although attrition is often observed in late bilingualism settings, such as in proficient second language learners (see Köpke, Schmid, Keijzer, & Dostert, 2007; Schmid, 2013), there has been evidence that HLS may also be affected by attrition (Polinsky, 2008, 2011). A third account, by contrast, suggests that HLSs' differences in the end state of their first language grammar are affiliated with the nature of input HLS receive during their language development (Kupisch & Rothman, 2016; Pascual y Cabo & Rothman, 2012; Putnam & Sánchez, 2013). Specifically, Pascual y Cabo and Rothman (2012) argued that the input in heritage language acquisition may have been affected by attrition across generations, suggesting that HLSs' non-target-like attainment may be linked to exposure to a form of input which contains attrited or simplified grammar structures during heritage language acquisition. See also, Kupisch and Rothman (2016) who note that the lack of formal education in heritage language is an important factor that reduces HLSs' access to rich input. Putnam and Sánchez's (2013, p. 488) model accounts that diminishing frequency of exposure to heritage language along the developmental stages leads to a low level of activation for certain functional structures, and consequently, lower activation in heritage language grammar results in "gradual replacement by functional values" in the dominant society language. However, HLSs' performances in their first (heritage) language have been shown to be subject to large individual differences (see e.g., Montrul & Sánchez-Walker, 2013; Pascual y Cabo & Rothman, 2012). It is however not well understood what determines this variability.

This study reports on data from narrative speech tasks administered to Turkish heritage speakers in the Netherlands. We investigated the appraisal of inflectional forms for evidentiality in narrative speech production of our Turkish HLS using a machine learning algorithm to determine which input-related factors (e.g. amount of exposure, proficiency, etc.) best predict Turkish HLSs' potential non-target-like uses of evidentiality.

2. Some features of evidentiality in Turkish

Evidentiality encodes sources of information (e.g. witnessing, inferring, hearing from another speaker) through which the speaker obtains the knowledge about an event represented in his statement (Aikhenvald, 2004). In most languages, including Dutch, the evidential status of statements can optionally be marked using adverbs (e.g. apparently) or reporting and modal verbs. In a number of languages, however, evidentiality constitutes a grammatical category encoded through verbal forms, the uses of which are often obligatorily. Turkish is an ‘evidential language’ and it grammatically marks ‘information sources’ through inflection morphemes affixed to the verb. Referring to the past requires Turkish speakers to make a choice between direct and indirect evidential forms. The direct evidential (-DI) conveys that the speaker has directly witnessed an event, see (1). The indirect evidential (-mİŞ), by contrast, reflects that the speaker has access to an event through second-hand knowledge, such as inference or verbal report from another speaker, as given in (2), (e.g. Johanson, 2000; Slobin & Aksu, 1982).

- (1) *Kadın bulaşığı yıkadı.*
 Woman dishes.ACC wash.DIRECT EVID.
 ‘The woman washed the dishes’ [witnessed]
- (2) *Kadın bulaşığı yıkamış.*
 Woman dishes.ACC wash.IDIRECT EVID.
 ‘The woman washed the dishes.’ [inferred or reported knowledge]

In (1), the use of a direct evidential form signals that the speaker witnessed the woman as she was washing the dishes. In (2), however, the use of an indirect evidential form encodes that the speaker did not witness the event directly but inferred that the woman washed the dishes or heard about it from another speaker.

Importantly, evidential forms act as narrative conventions: while the direct evidential is an appropriate form to talk about one’s personal or experienced stories, the indirect evidential is the traditional way of recounting folktales or reporting stories heard from others (Aksu-Koç, 1988).

3. Relevant studies on Turkish heritage speakers

Turkish spoken as a heritage language in European countries has long been studied with regard to narrative production using different analysis techniques. For instance, Pfaff (1991, 1993) elicited free-speech production, while others used storytelling tasks (e.g. Aarssen, 2001; Maviş, Tunçer, & Gagarina, 2016; Schaufeli, 1993). Findings from those studies showed that Turkish HLSs’ narratives differ from those

of their monolingual Turkish peers as they tend to lack complex syntactic structures (e.g. embedded clauses), lexical resources seem to be limited, and uses of inflectional morphology are occasionally inconsistent (Daller, Van Hout, & Treffers-Daller, 2003; Gürel & Yilmaz, 2011; Maviş et al., 2016; Pfaff, 1991; Schaufeli, 1993; Treffers-Daller, Özsoy, & Van Hout, 2007; Valk & Backus, 2013).

Evidential forms have been shown to be affected in Turkish HLS. For example, Pfaff (1993) reported that a Turkish child HLS who was rather more dominant in German produced fewer indirect evidentials than other bilingual children with Turkish-dominant language use. Instead, the child described events by using direct evidential or present progressive forms. Furthermore, Aarssen (2001) showed that Turkish child HLS in the Netherlands make inappropriate shifts between the evidential forms, even at the age of 10 while monolingual Turkish children have better command over the evidential morphology much earlier (Aksu-Koç, 1988). Karakoç (2007) also reports similar findings from inappropriate shifts between evidentials and indeterminant uses of these inflectional forms in child HLS of Turkish growing up in Germany. Karayayla (2020) studied adult Turkish HLS in the UK using semi-structured interviews and picture description tasks. Her data showed that Turkish HLS produced a larger number of inappropriate uses of indirect evidential forms, mostly because indirect evidential forms were substituted by direct ones, as compared to Turkish monolingual speakers.

Furthermore, Arslan, Bastiaanse, and Felser (2015) tested Turkish HLSs' processing of sentences marked either with a direct or an indirect evidential by monitoring participants' eye-movements in a visual world paradigm. Their data showed that Turkish HLS turned their gaze onto the target pictures less often than monolinguals did and that HLSs' eye movements tended to fluctuate between the target and non-target pictures during the processing of the direct evidential form. Turkish monolinguals showed an interesting pattern of eye movements during their processing of direct evidential; they fixated towards the picture that depicts the action in progress before their gazes turned to the target picture. This pattern was lacking in Turkish HLSs' eye movements, suggesting that these HLS had less of a need to look for a shred of evidence for the direct evidential condition. Arslan, de Kok, and Bastiaanse (2017), using a sentence verification task, examined a group of adult Turkish HLS living in the Netherlands. The authors used sentences that contained violations in evidential contents (e.g. *Yerken gördüm, az önce adam yemeği yemiş*, 'I saw the man while he is eating; he ate the food') to which participants were asked to respond if they detect any form of unacceptability. Their data showed that the monolingual Turkish speakers were faster and more accurate in responding to the task overall than HLS. Nonetheless, Turkish HLS largely failed at detecting evidentiality mismatches by both direct and indirect evidential forms (with about 32% accuracy).

In summary, the previous studies have shown that Turkish HLSs' command in evidential forms is either delayed or does not reach a complete non-target-like sensitivity. However, the so-far-mentioned studies are inconclusive in explaining why and which factors contribute to non-target-like attainment of evidential morphology in Turkish HLS. This is the topic to be explored in the current study. In particular, we formulated the following research questions:

1. Does the production of direct and indirect evidential forms in Turkish HLS differ from the monolingual baseline?
2. If so, which input related factors (e.g., daily language use, amount of exposure) predict non-target-like uses of evidentiality in HLS?

Regarding our first question, provided by the results from earlier studies, uses of evidential forms in Turkish HLS under investigation here are expected to differ from those in a reference group of Turkish monolingual speakers. Concerning our second question, the three theoretical approaches to adult HLS language outcomes in their heritage language predict different scenarios as to which factors might influence HLSs' non-target-like uses of evidentiality. First, the incomplete acquisition account predicts that Turkish HLSs' non-target-like uses of evidentiality would be caused by disrupted acquisition processes due to reduced input, and consequently, HLSs' knowledge of evidentiality would be incomplete. Second, under the attrition perspective, Turkish HLSs' knowledge of evidentiality is expected to differ from the monolingual baseline as a result of gradual regression. Finally, another cluster of studies would predict that Turkish HLSs' non-target-like attainment of evidentiality might be affiliated with the lack of rich quality input (e.g. Pascual y Cabo & Rothman, 2012) and with a low frequency of exposure to the heritage language (Putnam & Sánchez, 2013).

4. Method

4.1 Participants

Ten Turkish HLS living in Amsterdam, the Netherlands, were tested. Prior to testing, the participants completed a detailed demographic and bilingualism background questionnaire (see Table 1). The HLS had their first contact with Turkish in family settings and they began learning Dutch from about 3 years of age. In addition, 10 monolingual Turkish speakers (6 females, age = 24.2, ranges = 17–29) were tested in Turkey as a reference group. The monolinguals neither spoke any second language proficiently nor had they spent an extensive period of stay in a foreign country.

Table 1. Demographic and bilingualism background data from the Turkish HLS (Self-rated proficiency columns indicate averages language skills, maximum score = 5; Daily language exposure demonstrates the HLSs' estimation of the number of hours they spent being exposed to a language receptively (i.e. listening and reading))

Part.	Gender	Age	Self-rated proficiency		Daily language use (%)		Daily language* exposure (hours)		Bilingual parents? **
			Turkish	Dutch	Turkish	Dutch	Turkish	Dutch	
H1	M	18	2.50	4.25	50	50	4	7	Yes
H2	M	18	3.75	5.00	25	75	1	7	Yes
H3	M	18	4.00	4.75	50	50	3	4	Yes
H4	M	16	3.75	5.00	50	50	2	3	No
H5	M	17	4.50	5.00	50	50	3	3	No
H6	F	18	4.50	5.00	50	50	4	4	No
H7	F	18	4.25	5.00	50	50	4	5	Yes
H8	F	18	4.50	5.00	25	75	1	5	Yes
H9	F	17	3.25	5.00	25	75	3	6	Yes
H10	F	17	3.75	5.00	50	50	1	1	Yes
<i>Mean</i>		17.50	3.87	4.90	42.50	57.50	2.60	4.50	
<i>(SD)</i>		(0.70)	(0.63)	(0.24)	(12.07)	(12.07)	(1.26)	(1.90)	

* Note that all of the HLS reported here spoke English as a foreign language fluently.

** "No" in *bilingual parents* means at least one of the parents can only speak Turkish. However, note that parental interaction for all the participants was reported to occur in Turkish only.

4.2 Materials

The study included three tasks. First, the participants were given a "spontaneous speech" interview with open-end questions; see (I) below. Second, a "picture description" task was conducted in which the participants were asked to create stories. To elicit those stories, questions in (II) were used with the 'flood rescue' photo taken by Annie Wells and the 'cookie theft' photo (Goodglass & Kaplan, 1972). Finally, a "storytelling" task was administered by using the questions in (III). Production of evidentiality is context sensitive as, for instance, retellings of personal experience require uses of direct evidential while traditional storytelling in Turkish entails the use of indirect evidential form. Therefore, we chose to use different contexts to elicit narratives. Some participants were reluctant to talk in certain tasks, when this was the case, the experimenter encouraged participants to talk with complementary questions (e.g. Can you elaborate? Can you tell me the details?) to avoid unbalanced speech samples.

I. Spontaneous speech interview:

- *Bana biraz kendinden ve hobilerinden bahsedebilir misin?* ‘Could you talk about yourself and your hobbies?’
- *Bana geçirdiğin en iyi tatilini anlatabilir misin?* ‘Could you tell me about the best holiday you have had?’
- *Dün neler yaptığını anlatabilir misin?* ‘Could you talk about what you did yesterday?’

II. Picture description task:

- *Bu resimde neler gördüğünü anlatabilir misin?* ‘Could you tell me what you see in this picture?’
- *Bu resimle ilgili bir başı, ortası ve sonu olan bir hikaye yaratabilir misin?* ‘Could you make a story with a beginning, middle and end about this picture?’

III. Storytelling task:

- *Seyrettiğin bir filmi anlatabilir misin?* ‘Could you talk about a movie you have seen?’
- *Duyduğun bir masal veya fıkra anlatabilir misin?* ‘Could you tell me a folk-tale or an anecdote you have heard?’

4.3 Procedure

The three tasks were administered in a single session with each participant individually. All participants responded to all questions in the tasks. The sessions were digitally recorded and orthographically transcribed by two Turkish-speaking research assistants. A 600-word sample per participant with an equal proportion of words for each task was extracted. The reason for why we used a fixed number of words stems comes from the fact that we need to elicit comparable amounts of finite verbs to examine the production of evidentiality. Turkish evidentials are expressed in finite verbs, and Turkish HLS have been shown to differ from their monolingual peers in Turkey in that they tend to overproduce finite verbs with shorter and less complex clauses using a lower number of non-finite verbs in relative or subordinate clauses (see e.g. Valk & Backus, 2013). Thus, we used speech samples with a fixed number of words² in which the number of utterances and finite verbs are comparable across groups (see in the results section below) to avoid a scenario

2. Please note that using fixed number of words does not necessarily compromise sample sizes; it is only relevant to us from a very pure methodological point of view. Furthermore, samples analyzed here are in fact not any smaller than many studies that employed the ‘whole data’ approach, for instance, Aksu-Koç’s (1994) norms for adult Turkish narratives contained a mean number of 82 clauses, which are comparable to our samples here (see Table 2 below).

where HLSs' evidentiality production is confounded simply due to a greater number of finite verbs produced. We made sure that the speech samples contained a similar number of utterances across tasks and that all of the participants' responses to every elicitation question were represented in the speech samples. Only a very small portion of data was discarded during extraction (about 1–2% per participant, roughly 2–4 clauses). The following variables were independently scored by two independent Turkish linguists:

- Mean length of utterances (MLU = number of words divided by the number of utterances).³
- The number and diversity of finite verbs, including non-verbal predicates (measured by type/token ratio (TTR) = different types of finite verb lemmas lexemes divided by the total number of finite verb tokens) and the ratio of finite and non-finite verbs per utterance.^{4,5}
- Frequency of verb inflections for evidentiality.
- The number of contextually inappropriate substitution errors (i.e. non-target-like uses). A verb inflection inappropriately used in place of another inflection was counted as a substitution error. Note that inflection shifts that convey clear communicative functions were not counted as a substitution error. For instance, Turkish narrators often alternatively use present progressive forms in reference to personally experienced events to make their narratives sound 'lively' (see Aksu-Koç, 1994; Karakoç, 2007). Hence, such instances of inflection shifts were not counted as errors.

Group differences were tested using independent samples t-tests. Potential predictors of non-standard uses of evidentiality were determined using the J48 tree-based classification algorithm (Quinlan, 1993). J48 is a machine learning algorithm used for data classification based on binary decision trees; that is, it generates simple decision trees to decide whether data points belong to class A or class B. J48 is a very accurate and cost-effective algorithm for binary classification problems (Patil & Sherekar, 2013). It has widely been used in clinical research, for instance, to predict whether one gets diabetes or not (Kaur & Chhabra, 2014). Following a similar analogy, we used the J48 algorithm to predict whether HLS use evidentiality

3. Although the main topic in this chapter is the appraisal of evidential forms, we have included MLU and diversity of finite verbs in our analyses to be able to provide information on the general characteristics of narratives in which evidential forms are quantified.

4. TTR is a reliable measure of diversity when sample sizes and tokens are equal (Malvern & Richards, 1997).

5. We tallied non-verbal predicates (e.g. nominal predicates, existential forms and copulas) under the label of finite verbs as evidential forms can also be appended to those structures.

correctly or not; and importantly, to unveil which input-relevant factors best determine their non-target-like uses of evidentiality. Furthermore, this classification model is advantageous in comparison to many other statistical procedures used in the bilingualism field; for example, mixed-effects regression models cannot hold too many factors especially when they correlate with each other. In simple decision-tree-based classification models, such problems are minimal. The following steps were taken in the machine learning analyses:

- *Variable selection and importance:* Before the data were implemented in the J48 algorithm, potential predicting factors were evaluated using the ‘information gain’ procedure, (see Quinlan, 1986). This procedure determines which factors (i.e. variables) are the most useful in discriminating the target classes (i.e. correct vs. incorrect uses of evidentiality). The following variables were determined to be potentially the most important ones:
 - Self-rated proficiency in Turkish and Dutch (individuals’ own estimates for their language skills proficiency in reading, listening, speaking, and writing were first collected on a 5-point scale for each language separately: 1 being low and 5 being high, and the average of these four skills was taken as the overall proficiency in each language).⁶ This method to measure Turkish HLSs’ language proficiencies has widely been employed and been shown to be highly reliable, see Sevinç (2016).
 - Estimated percentage of daily language use of Turkish and Dutch (individuals’ estimated language use in percentages during a usual day).
 - Daily exposure to Turkish and Dutch (Individuals’ estimates of their language exposure by for instance reading and listening in terms of number of hours in a usual day). See Table 1 above for individual data for these variables.
- *Data interpolation:* As the data set we used in our analyses were unbalanced due to the larger number of correctly used evidential forms over substitution errors, we interpolated synthetic sample of errors using the Synthetic Minority Oversampling Technique following Chawla, Bowyer, Hall, & Kegelmeyer (2002). That is, additional data points for substitution errors were estimated based on the existing ones to minimalize misclassification errors in machine learning.

6. Please note that methods to calculate language dominance and proficiency in bilingual individuals include a number of different measures with only minimum agreement among authors (see e.g., Treffers-Daller, 2015). The self-rated proficiency scores only point to a rough estimate of the HLSs’ language abilities, and therefore, should not be taken as an exact indication of dominance or proficiency.

- *Implementation and decision tree visualization*: The J48 decision tree algorithm was employed to classify correct and incorrect uses of evidentiality using the WEKA software version 3.6.13 (The University of Waikato, Hamilton, New Zealand). A ten-fold cross-validation was used in the learning implementation. That is, randomly selected 9/10 of the data were used to train the learning algorithm and the remaining 1/10 to test the algorithm. This process was repeated 10 times until all dividends of the data were used in testing. The most accurate decision tree was reported.

5. Results

5.1 General characteristics of utterances and finite verbs

Table 2 presents individual scores for general characteristics of produced utterances and finite verbs in the analyzed samples. The statistical outputs from independent samples t-tests indicated that the HLS did not produce fewer utterances ($t(18) = -1.06, p = 0.30$), nor were their utterances shorter, as measured by MLU ($t(18) = 0.98, p = 0.33$), than those of the monolinguals. The HLS produced similar numbers of finite verbs ($t(18) = -1.32, p = 0.48$) to the monolinguals. However, the diversity of those finite verbs in the HLS, as measured by TTR, was significantly reduced ($t(18) = 3.85, p = 0.001$). The HLS's ratio of finite verbs per utterance was not different from the monolinguals ($t(18) = -0.13, p = 0.89$); nonetheless, they produced fewer non-finite verbs than monolinguals ($t(18) = 2.85, p = 0.011$).⁷

5.2 Inflected forms for evidentiality

In Table 3, the number of verb inflections for evidentiality and present progressive are demonstrated. We also provide the number of present progressive forms here as this form was largely produced by both groups. Outputs from a set of independent sample t-tests demonstrated that the number of direct evidential morphemes produced by the HLS in 600-word samples was similar to that of the monolingual speakers ($t(18) = -0.28, p = 0.78$), as was the number of indirect evidential morpheme ($t(18) = 0.53, p = 0.59$). The only significant group difference indicated an overuse of present progressive form in the HLS as compared to the monolinguals ($t(18) = -2.26, p = 0.036$). The HLS produced fewer indirect evidential than direct evidential forms in their narratives ($t(18) = 2.64, p = 0.027$), yet this difference was not significant in the monolinguals ($t(18) = 1.73, p = 0.11$).

7. Notice that non-finite verbs are mainly used in subject and object relative clauses.

Table 2. Individual scores of general characteristics of utterances and (non)-finite verbs (heritage speakers (H1–10) and monolingual speakers (M1–10))

	Nr Utterances	MLU	Finite verbs	TTR finite verbs	Finite verb per utterance	Non-finite verbs
H1	126	4.76	125	0.62	0.99	25
H2	126	4.76	134	0.63	1.06	30
H3	200	3.00	117	0.63	0.59	38
H4	98	6.12	99	0.70	1.01	28
H5	110	5.45	109	0.61	0.99	44
H6	123	4.88	135	0.58	1.10	28
H7	108	5.56	115	0.68	1.06	24
H8	144	4.17	135	0.63	0.94	20
H9	102	5.88	109	0.70	1.07	39
H10	129	4.65	139	0.56	1.08	27
Mean	126.6	4.9	121.7	0.63	0.98	30.3
(SD)	(29.3)	(0.90)	(13.8)	(0.04)	(0.11)	(7.5)
M1	126	4.76	123	0.57	0.98	49
M2	97	6.19	104	0.86	1.07	54
M3	118	5.08	99	0.70	0.84	33
M4	83	7.23	88	0.72	1.06	45
M5	120	5.00	114	0.72	0.95	38
M6	116	5.17	93	0.76	0.80	39
M7	107	5.61	119	0.76	1.11	48
M8	122	4.92	111	0.82	0.91	29
M9	123	4.88	140	0.89	1.14	45
M10	141	4.26	134	0.90	0.95	28
Mean	115.3	5.3	112.5	0.77	0.98	40.8
(SD)	(16.1)	(0.84)	(17.0)	(0.10)	(0.15)	(8.8)

Table 3. The number of finite verb inflections (in raw counts) for direct, indirect evidential and present progressive forms (heritage speakers (H1–10) and monolingual speakers (M1–10))

	Direct evidential	Indirect evidential	Present progressive
H1	20.0	14.0	54.0
H2	44.0	15.0	34.0
H3	17.0	2.0	85.0
H4	45.0	0.0	37.0
H5	28.0	8.0	34.0
H6	11.0	29.0	37.0
H7	27.0	25.0	34.0
H8	24.0	8.0	56.0
H9	23.0	1.0	68.0
H10	34.0	29.0	52.0

Table 3. (continued)

	Direct evidential	Indirect evidential	Present progressive
Mean	27.3	13.1	49.1
(SD)	(11.0)	(11.2)	(17.3)
M1	50.0	15.0	30.0
M2	13.0	10.0	7.0
M3	12.0	10.0	47.0
M4	36.0	15.0	21.0
M5	44.0	4.0	39.0
M6	30.0	25.0	24.0
M7	19.0	19.0	50.0
M8	21.0	5.0	48.0
M9	8.0	13.0	30.0
M10	24.0	42.0	37.0
Mean	25.7	15.8	33.3
(SD)	(17.0)	(11.1)	(13.6)

An error analysis showed that two types of contextually inappropriate substitution errors were frequently made by the HLS in their use of evidential morphemes (see Table 4). The first type was substitutions by direct evidentials in places of indirect evidentials. The HLS outnumbered the monolinguals in making this kind of error ($t(18) = -2.537, p = 0.021$). The second pattern was substitutions by present progressive in places where a direct evidential should have been used, but these substitutions were rarely made in either group ($t(18) = -0.156, p = 0.87$).

Table 4. The number of substitution errors in verb inflections in narratives produced by Turkish monolingual and heritage speakers

	Direct evidential in place of indirect evidential	Present progressive in place of direct evidential
Heritage speakers	47 (90%)	5 (45%)
Monolinguals	5 (10%)	6 (54%)

5.3 Determining the predictors of incorrect uses of evidentiality through machine learning

The HLS's utterances containing at least one evidential form were extracted and split into a total number of 404 clauses. The uses of these evidential forms were quantified as 'incorrect' vs. 'correct' depending on the evaluation of independent scorers. These accuracy data were fed into the learning algorithm as an index variable to act as the target classes (correct vs. incorrect; i.e., no-substitution vs. substitutions).

The outputs from the J48 classification algorithm revealed that the most powerful determiner of whether or not a clause with an evidential form would be uttered correctly was the HLS's self-reported daily receptive exposure to Turkish. The clauses produced by the HLS who have more than 2.88 hours of receptive exposure to Turkish everyday bear a greater likelihood of being 'correct' than those clauses from the HLS who have less exposure to Turkish. Furthermore, the greatest number of incorrect uses of evidential forms were found in clauses from the HLS who have less than 1 hour of daily exposure to Turkish. This is graphically represented in the decision tree in Figure 1.

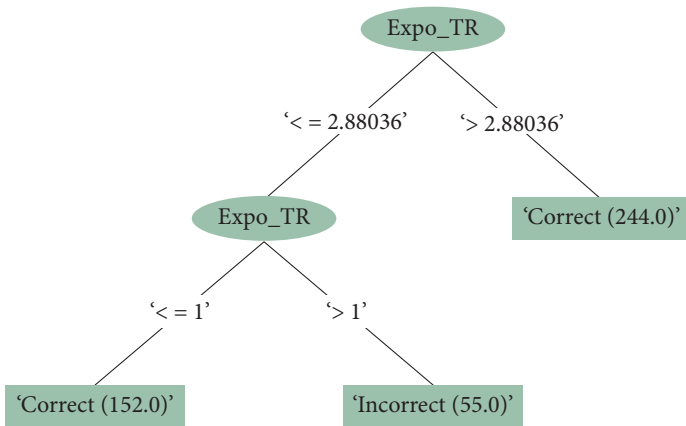


Figure 1. Graphical representation of the outcomes from the J48 tree-structure classification algorithm applied to the data. Expo_TR = daily number of hours being exposed to Turkish (e.g. reading, listening). The numbers on the branched lines indicate the cut-off points. The boxes indicate the number of precisely classified number of clauses with evidentiality. For instance, the algorithm precisely classified 55 incorrect clauses with evidentiality (i.e. the use of evidential was wrong in those clauses) from those who have less than or equal to 1 hour of exposure to Turkish

6. Discussion

The current study aimed at exploring two research questions: (1) whether the production of direct and indirect evidential forms in Turkish HLS differs from a Turkish monolingual baseline, and (2) if so, which input-related factors predict variability in HLS's non-target-like attainment of evidential forms in Turkish. Findings from our study have advanced our insights into Turkish HLS's non-target-like attainment of evidentiality and the potential causes for it.

With regard to our first research question, the HLS performed differently from monolingual speakers in producing evidential forms in their narratives. However, this was not immediately obvious at first sight. The HLS produced similar amounts of both evidential forms as compared to the monolingual baseline. This was true for the production of finite verbs overall, despite a reduced diversity of finite verbs. A closer look revealed that the HLS tended to make a larger number of contextually inappropriate substitutions by using direct evidential forms in places where an indirect evidential should normally be used. This finding is fully reconcilable with the previous studies (Aarssen, 2001; Karakoç, 2007; Karayayla, 2020; Pfaff, 1993), which showed that both child and adult Turkish HLS are prone to indeterminacy in their choices of evidential forms. However, does this mean that our HLS never properly acquired the evidential distinctions? If the HLS never acquired these distinctions (i.e. incomplete acquisition), then they would not have been able to use the evidential forms to the same extent as the monolinguals did. Recall that we did not find a quantitative difference in the HLS's frequency of use of the evidential forms from the monolinguals. Therefore, we believe that evidentiality marking has possibly undergone a form of attrition (Polinsky, 2008, 2011). Please note that however at the absence of data from child HLS to disentangle between incomplete acquisition and attrition, we may only speculate over this possibility. Alternatively, evidentiality distinctions may have been simplified in Turkish heritage grammar through cross-generation attrition. This line of reasoning would be in line with Pascual y Cabo and Rothman (2012), who suggest that heritage language acquisition occurs under different circumstances from monolingual language acquisition, and that input in heritage language conditions may be affected by attrition.

With regard to our second question, where we aimed to determine the input-related predictors of non-standard uses of evidential forms in the Turkish HLS. For this purpose, we used the J48 decision-tree based machine learning model, outputs from which have precisely indicated that the Turkish HLS's contextually inappropriate substitutions are largely predicted by the amount of (self-reported) exposure to Turkish. That is, the HLS who reported to be less exposed to Turkish in their daily life, produced greater amounts of contextually inappropriate choices of evidential forms, in comparison to the HLS who reported to be exposed relatively more to Turkish. The model's significant branching point in the decision tree was shown to be 2.88 hours of exposure daily (See Figure 1). This is a revealing finding in that non-standard uses of evidentiality marking in Turkish heritage grammar seem to be strongly linked to daily first (heritage) language exposure. We therefore support the theory that predicts diminishing frequency of input to heritage language can lead to low sensitivity to heritage language features (Putnam & Sánchez, 2013). One needs to be cautious here however, as our data can only allow us to

contemplate on input-related factors at the early adulthood phase of HLS. That is, the self-reported daily exposure data reported here represent the HLS's current exposure to Turkish; this exposure pattern may not be the same throughout their language development. Nonetheless, it is still an interesting finding as variability in exposure to heritage language at early adulthood can significantly predict non-standard uses of their heritage language, complementing the burgeoning studies that reported importance of input frequency and quality during in both young and adult bilinguals (Montrul & Sánchez-Walker, 2013; Pascual y Cabo & Rothman, 2012; Putnam & Sánchez, 2013; Schmid, 2007).

The Turkish HLS's indeterminant uses of evidential forms in their first (heritage) language are largely compatible with the previous experimental psycholinguistic studies that measured Turkish HLS's online processing of evidentiality (Arslan et al., 2015; Arslan et al., 2017). Particularly, Arslan et al.'s (2015) visual world eye-movement monitoring study showed that adult Turkish HLS had less accurate responses and reduced proportions of looks to the target pictures than monolingual Turkish speakers in their evidentiality processing. These HLS were more accurate and had more settled fixations towards the target pictures in the indirect evidential condition than in the direct evidential condition. The authors argued that semantic and pragmatic functions of direct evidentiality in Turkish heritage grammar may have been simplified, and hence, Turkish HLS 'take the direct evidential to be a past tense marker without any specific evidential content' (Arslan et al., 2015, p. 11). In the current study, we found that our Turkish HLS over-extended uses of direct evidential forms in places where indirect evidentials normally would be more appropriate. This provides converging support to the claim that pragmatic and semantic distinctions of evidentiality marking in Turkish heritage grammar might, in fact, have been simplified, either possibly due to attrition in the individual or through being exposed to simplified and attrited input, or perhaps both (see Pascual y Cabo & Rothman, 2012; Schmid, 2007). As a consequence, the HLS use evidential forms indeterminately in their narrative speech, and they are less sensitive to information source contexts evidentials mark. There is experimental evidence for this insensitivity, see Arslan et al. (2017), who found that Turkish HLS in the Netherlands performed below chance in noticing information source – evidentiality mismatches in sentences.

One would, however, wonder to what extent these inflated uses of indirect evidentials found in the HLS are actually errors. We believe that these contextually inappropriate substitutions should not be taken as an absolute indicator of errors that lead to unsuccessful communication. When a direct evidential replaces indirect evidential, sentence meaning does not become completely ungrammatical in Turkish, yet it becomes compromised in the semantic and pragmatic functions that can be fulfilled. Recall that the monolingual speakers also produced such

substitution errors, though not to the same extent as the HLS. Importantly, switches between inflection forms in Turkish narratives are often done on purpose to fulfil certain pragmatic functions, such as to indicate temporally asynchronous events (Aksu-Koç, 1994). This is not what we mean by a substitution error. We mean that a sentence clearly signals the speaker's indirect information regarding an event, and in such a context an indirect evidential would normally be appropriate, yet a direct evidential was used without a clear pragmatic or communicative motivation. In (3) below, we provide an illustration of such a contextually inappropriate substitution.

- (3) An example from an HLS speech (H10)
- Ananesinin evine gitmiş anenesi*
 Grand mother.POSS house.DAT go.INDIRECTEVID.3ST Grand mother.POSS
kapıyı açmadı. Camdan içeri bakmış.
 door.ACC open.NEG.DIRECTEVID window.AB inside. look.INDIRECTEVID.3ST
 '(she) went to her grandmother's house [indirect evidential], her grandmother did not open the door [direct evidential] (and then she) looked inside from the window [indirect evidential].'

In (3), *açmadı*'did not open' (marked for direct evidential), for instance, was counted as a contextually inappropriate substitution. Controversially, the speaker shifts from the non-firsthand information perspective to firsthand perspective by using a direct evidential during retelling a folktale. Such contextually inappropriate substitutions were found only minimally in the narratives collected from the monolingual Turkish speakers. Evidential forms used in place of another form have been argued to expose counter-intuitive effects (Aikhenvald, 2004), and the less sensitivity to such effects in our HLS narratives clearly indicate that the evidentiality marking has been simplified in Turkish heritage grammars.

Another possibility is that the HLS are less comfortable in following, or even perhaps, are less aware of, the narrative conventions in Turkish. Therefore, they do not mind breaching those conventions and produce non-standard uses of evidentials in their narratives. While this idea may be partially accounted for by our data, it is not enough to explain the unidirectionality of substitutions. In other words, if the HLS's non-standard uses of evidentiality are caused by breaching the narrative conventions, we expect substitution errors of indirect evidential used in places of direct evidential as well. However, this was not what we found.

This small-sized study obviously had limitations. First, we would like to mention that the data we presented here showcased how important input-related factors would be at the early adulthood stage of Turkish HLS's language development. However, this cannot be extended to argue for or against incomplete acquisition and attrition accounts at the absence of developmental data from our HLS. Furthermore, beyond the fact that it is not warranted at what age grammatical

knowledge becomes complete, it is also currently not examined at what age attainment of evidentiality fully stabilizes in Turkish children/adolescents. For instance, see Özturk and Papafragou (2016), who reported that semantic and pragmatic notions of evidentiality are not fully acquired until the age of 6 or 7 in Turkish children, and their development probably extends beyond this age. Therefore, due to this gap in knowledge on the development of evidentiality in older children and adolescents, we are limited in our contemplation for whether or not evidentiality distinctions are incompletely acquired in Turkish HLS. Second, it is debated to what extent self-reported data are reliable in bilingualism research. We analyzed self-reported input-related factors in this study (e.g. daily amount of exposure) in our participants' own estimates. Importantly, this study showed that self-reported daily exposure is an important predictor in language outcomes in heritage bilingualism. However, we still caution the reader that exposure data here are only estimated numbers by our participants. It is also not very clear how input features, such as input quality and length and quality of exposure, can actually be precisely measured. Authors in heritage the bilingualism field mostly resort to using participant background questionnaires or surveys to collect data about input factors. Finally, note that we used Turkish spoken in Turkey as the reference baseline to test Turkish HLS's attainment of evidential forms. Although using monolingual baselines is a standard way of comparison in most previous studies, it is obvious here that the HLS are less sensitive to aspects of narrative production compared to monolingual individuals. This results in an unavoidable monolingual advantage. To make things rather fair for our heritage speakers, we may have alternatively looked at the production of evidential forms in their societally dominant language narratives (i.e. Dutch). However, evidentiality marking in Dutch is not grammaticalized as it is in Turkish. It is worthwhile, however, to conduct a future study to see whether or not Turkish heritage speakers use comparable evidential strategies in their societally dominant languages. Cross-linguistic convergence of evidentiality is indeed not uncommon, see for instance Sánchez (2004) who showed emerging evidential forms in Spanish (a non-evidential language) spoken by Quechua speakers.

7. Conclusions

In this chapter, we presented a preliminary study reporting on the use of evidential verb forms in adult Turkish HLS's narratives. We used this preliminary data to implement a machine learning algorithm to determine which input-related factors predict the HLS's contextually inappropriate uses of evidentiality. Based on the findings from this preliminary work, an overall conclusion we can arrive at is that HLS's daily exposure to Turkish is the most important determiner of their contextually

inappropriate uses of evidential forms. We should note however, that Turkish HLS's bilingualism background data contain large variability even in a sample of 10 individuals. Finally, this study showcased that the J48 algorithm, a machine learning algorithm for decision-tree based classification, is useful in analyzing more than one input-related factor as determinants of HLS language outcomes.

Acknowledgements

We are grateful to Paul Slomp, Margriet Zwiers, Ayşe Serra Kaya, Gamze Yeşilli, and Pınar Arslan for their help in different stages of this study.

Funding

Seckin Arslan acknowledges that this research was conducted under the auspices of support awarded by the European Commission's Erasmus-Mundus Joint Doctoral grant (2012-1713/001-001-EMJD); by a research grant from the Academy of Korean Studies (AKS-2019-R22), and by an Initiative of Excellence Young Researcher award from the French National Research Agency/ Université Côte d'Azur (ANR-15-IDEX-01). Roelien Bastiaanse is partially supported by the Center for Language and Brain of the National Research University, Higher School of Economics, Russian Federation Government grant (no. 14.641.31.0004); and by a subsidy from the Russian Academic Excellence Project '5-100'.

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Investigating the effects of L1 proficiency and CLI

RT data from speakers of heritage L1 Turkish with dominant German L2

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This paper investigates the effects of cross-linguistic influence (CLI) in L1 Turkish of Turkish-German bilingual speakers. The study examines whether overlapping structures in the two languages result in influences of the dominant L2 German on the weaker L1 Turkish in morphosyntactic processing. Plural-marking on noun phrases was chosen for investigation since it provides an ideal test case and it constitutes partial overlap in German and Turkish. Since various definitions of CLI describe effects of this phenomenon that relate to language processing, behavioral measures are utilized in this research. The analyses of accuracy rates reveal that the two languages are clearly differentiated from each other. However, the bilingual speakers perform better with respect to the construction, which is only available in Turkish, compared to the overlapping structure between the languages. This indicates that the speakers separate the two languages from each other. However, interlanguage cue competition is at play in morphosyntactic processing in the L1 heritage language. The effects of heritage language proficiency are also examined by means of comparing high- and low-to-intermediate heritage speakers. The proficiency effects on L1 processing can be found in processing speed but not in accuracy rates. High-to-intermediate speakers do not differ from monolinguals in their processing speed, whereas the low-to-intermediate speakers perform slower than both the monolinguals and the high-to-intermediate heritage speakers. We discuss these findings within Modular Online Growth and Use of Language (MOGUL), which is a processing-based linguistic framework that accounts for the interaction of the two languages in the bilingual mind.

Keywords: heritage bilingualism, cross linguistic influence, L1 proficiency, reaction time study

1. Introduction

The research on bilingual (first language) acquisition has focused on the question of whether early acquirers of two languages are capable of differentiating between the two languages. Based on their analysis of the bilingual language acquisition process, Volterra and Taeschner (1978, p. 311) describe three stages. In the first stage, the child has one lexical system that includes words from both languages; in the second stage, s/he distinguishes between two different lexicons but applies the same syntactic rules to both languages; and in the third stage, s/he has two systems with a distinct lexicon and syntax. The view of separate linguistic systems in the bilingual mind is further supported by other researchers; some of them even suggest that a bilingual child develops competency in both languages in the same way as monolingual children or with less variation (Deuchar & Quay, 2000; Genesee, 1989, 2001; De Houwer, 1990, 2005; Meisel, 1989, 2001). Meisel (1994, p. 414) considers language separation to be a prerequisite even for intra-sentential codeswitching: “[O]ne can only switch from one system to another if the two are distinct.” Even if the children’s linguistic systems are indeed differentiated, the separation view does not support the idea that the two languages are isolated from each other. Bilingual children compare and contrast the two languages during language processing; therefore, it is appropriate to expect interactions between the two languages, even after differentiation. After the acquisition process is complete and the final stage of acquisition has been reached, the transfer of structures from one language to the other can still be observed. Transfer occurs especially in demanding processing situations, such as when the two languages are required to be used simultaneously and the speaker has to switch rapidly between them (Volterra & Taeschner, 1978) or when a bilingual speaker is asked to perform demanding linguistic tasks under time pressure (Carlson & Meltzoff 2008). Grosjean (2011) differentiates between terms referring to the effects regarding the interaction of the two languages in the bilingual speaker’s mind. He suggests the use of the term “transfer” for static phenomena that indicate permanent influences of one language on the other, and the term “interference” for dynamic phenomena (i.e., elements of the other language(s) that slip into the output of the language being spoken or written) (for a similar differentiation between the terms, see Sharwood-Smith & Truscott, 2008). This paper is concerned with the latter type of phenomenon, namely interferences during language processing.

Studies on bilingualism research have examined the nature of cross-linguistic influence (CLI) by investigating which phenomena are open to effects of CLI and what constitutes evidence of its existence. In its various definitions, CLI has been assumed to result from similarities and differences between the target languages and any other language that has been acquired (Selinker, 1966, p. 27; Odlin, 1989,

p. 103). Studies that compare similar and different structures in the two languages have suggested that interlanguage structural ambiguity in the input causes CLI rather than the transfer of structures from the other language (e.g., Müller, 1998; Hulk & van der Linden, 1996). In line with this suggestion, Döpke (1999) has shown that although German-English-speaking bilingual children follow the same development patterns as monolingual children who acquire German or English, the potential for cognitive interactions between the languages in the form of cross-linguistic cue competition arises when there are structures common to both languages. In her study, the English-German bilingual children overgeneralized VO word order in German because English has the fixed word order VO and German has rule-governed but variable word order, with VO representing one possibility in certain constructions. Overall, the results have been taken to suggest that these structures represent potential intra-linguistic options that are not commonly exploited by monolingual learners but that are enhanced by simultaneous input in both languages (Döpke, 1999; see also Putnam et al., 2018).

In addition to the well-documented effects of language transfer from L1 onto L2 (forward transfer) (for a review, see Unsworth, 2010), relatively few researchers have shown that the direction can be reversed and that systematic effects of CLI from L2 to L1 (reverse transfer) can also be observed (e.g., Cook, 2003; Pavlenko & Jarvis, 2002; Porte, 2003). Here, language dominance is an important factor in determining the likelihood of CLI. When a bilingual speaker becomes more proficient in one of the two languages s/he speaks, this language is referred to as the dominant language (Genesee et al., 1995). CLI is more likely to be observed from the more-dominant to the less-dominant or weaker language (Bernardini, 2003; Jarvis, 2000; Kupisch, 2007; Nicoladis, 2002, 2003; Serratrice et al., 2009; Yip & Matthews, 2000, 2007).

In this context, CLI effects from L2 to L1 have also been tested in heritage bilingual speakers, namely child and adult members of a linguistic minority who grow up exposed to their home language and the majority language (Polinsky & Kagan, 2007, p. 370; Rothman, 2009, p. 157). Heritage speakers acquire the family language naturalistically from birth similar to the manner by which monolingual children do. The majority language (L2) is acquired either simultaneously with the family language or soon thereafter. If children become exposed to L2 before the age of three, they are considered to be simultaneous bilinguals; if L2 is acquired after this age, these children are considered early sequential bilinguals (Grosjean, 1982; Odlin, 1989). Due largely to the fact that heritage speakers are exposed to both languages naturalistically in early childhood, they qualify as native speakers of both languages (Rothman & Treffers-Daller, 2014, p. 93). However, unlike monolingual children, heritage bilingual children receive reduced input in a restricted set of contexts. As the amount of input is a key variable in bilingual language acquisition, reduced

exposure to L1 in the early stages may result in differences in the acquisition of linguistic structures (Bohman et al., 2010; Unsworth et al., 2011; Unsworth, 2013). Moreover, the language spoken at home may differ from that spoken in the monolingual community because the parents of these children also live in a bilingual environment and speak the majority language (Kaltsa et al., 2015; Kupisch et al., 2018; Méndez et al., 2015; Pascual, 2018). More importantly, heritage-language children are typically schooled in the majority language. Due to the lack of adequate academic support in the heritage language, many heritage speakers do not have the chance to acquire academic literacy or to have contact with formal registers of the heritage language. The language environment of Turkish-German heritage bilingual speakers (whose L1 is under investigation in this study) also displays these characteristics (for a detailed description of the educational environment of Turkish-German heritage speakers see Küppers et al., 2015). These circumstances may lead to differences in the L1 of heritage-language speakers when compared with monolinguals (Kupisch & Rothman, 2018, p. 14; Rothman, 2009, p. 156, see also Bayram et al., 2017). Therefore, the acquisition process that these speakers go through is referred to as “differential acquisition” (Kupisch & Rothman, 2018, p. 16).

Various studies have discussed the transfer from the dominant language to the heritage language (Cuza & Frank, 2011; Montrul, 2010; Montrul & Ionin, 2010). In line with the assumptions on the relation of CLI to processing, the results have mostly revealed that CLI operates more at the level of language use (or processing) (Flores, 2015). Most recently, research on bilingualism in general as well as on heritage bilinguals has focused on the interface phenomena following the assumptions in Hulk & Müller (2000) and later in Sorace & Filiaci (2006). CLI was suspected to occur at the interface between overlapping structures. For instance, in the use of overt pronouns in accordance with pragmatic constraints in certain discourse contexts in a pro-drop language (e.g., Spanish, Turkish), when the speakers’ dominant language requires the obligatory use of the pronoun across all contexts (e.g., English, German). Kupisch (2014) presented naturalistic and experimental data from adult German-Italian bilingual speakers in an investigation of the adjective-placement phenomenon (in German Adj – N; in Italian N – Adj). The effects of CLI did not emerge in the experimental data; instead, the speakers overused a structure that is only available in Italian. Kupisch (2014, p. 231) thus proposed the concept of “cross-linguistic overcorrection” to account for this pattern, suggesting that the adult bilinguals focus on the differences between the languages rather than the similarities. In a recent study, Bamyacı (2016) examined two different interface types in L1 Turkish heritage speakers with dominant German L2. She investigated the semantic and pragmatic constraints on the occurrence of optional verb-number marking in Turkish in separate experiments using the Magnitude

Estimation method. The results of both experiments consistently showed a higher sensitivity to semantic and pragmatic constraints and finer distinctions of these constraints in bilingual speakers when compared with monolingual speakers. Bamyacı (2016) evaluated her results in a processing-based framework and suggested that this sensitivity stems from interlanguage cue competition without any trace of transfer from the L2.

In this study, we investigate a morphosyntactic phenomenon in the absence of a specific interface issue in L1 Turkish of Turkish-German heritage bilingual speakers. More precisely, we investigate the processing of plural marking on Turkish noun phrases. In accordance with the peculiarities of the CLI phenomena under investigation and the online technique used as the experimental method in this research, we aimed to evaluate our experimental outcomes from a language-processing perspective, namely the MOGUL (Modular Growth and Use of Language) framework of Sharwood-Smith & Truscott (2014). The MOGUL framework provides a processing-based account of the acquisition of more than one language and the interaction of languages in the bilingual mind. In MOGUL, the acquisition of language is described as a lingering effect of language processing – that is, once the speaker is exposed to a new linguistic item by hearing or reading it, this item is represented in the individual's memory. Each time a particular linguistic item is processed, its activation levels increase, and it becomes more readily available to be selected for processing in the future. However, the items do not need to reach a certain activation threshold to compete with other items to be selected in processing – that is, all items that are represented in the speakers' linguistic memory can participate in the competition of being processed. Importantly, in MOGUL, structures relating to different languages occupy the same memory locations. Accordingly, the key to CLI in MOGUL is the fact that processing works with the common store of L1 and L2 items and therefore there is simultaneous access to the features of both languages. MOGUL thus directly predicts the occurrence of CLI in performances. Therefore, when bilingual speakers process stimuli in their weak L1, the relevant structures with high activation levels in their dominant L2 may also participate in the competition of being selected for processing.

2. Goals of the study

In this study, we investigated the potential effects of CLI from German in L1 Turkish of adult Turkish-German heritage speakers living in Germany compared to monolingually-raised Turkish speakers living in Turkey. Turkish-German heritage speakers typically display monolingual-like attainment in the L2 German (which is

their dominant language) and varied levels of proficiency in the L1 (which is often the weaker language). The characteristics of the group under investigation are described in detail in Section 3.1. Therefore, this group is appropriate for studying the relationship of language dominance and CLI from L2 to L1. Additionally, the group of heritage-language speakers in this study was split into high- and low-proficiency levels according to the speakers' scores on the Turkish language-proficiency test (see Section 3.1). This enabled us to examine the relationship between L1 proficiency and CLI effects.

We examined number inflection on nouns as a test case. Although the number markings on nouns differ greatly in the two languages, there are also some overlaps. Turkish has only one plural suffix, *-lar*, which can take the form of *'-ler'* or *'-lar'* depending on the backness of the last vowel in the stem, as shown in the examples in (1) (Kornfilt, 1997, p. 253):

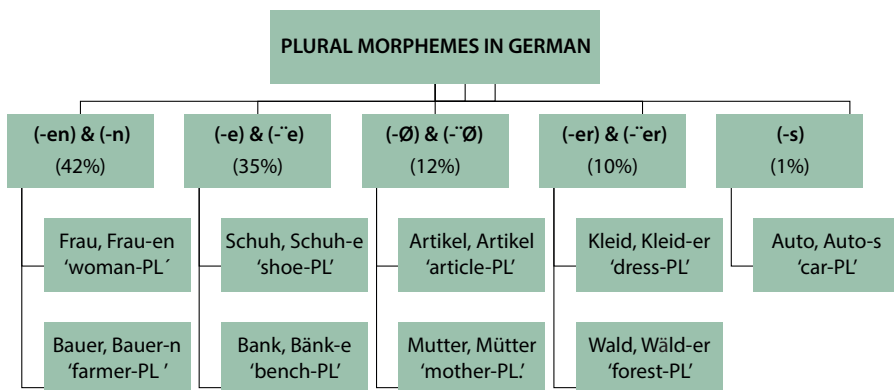
- (1) a. *masa -lar*
 table -PL
 'tables'
 b. *kedı -ler*
 cat -PL
 'cats'

The examples above illustrate the use of the two different plural forms in Turkish. When the nouns co-occur with a numeral, the plural suffix becomes redundant, and its use therefore becomes illicit, as illustrated in the example in (2a) below. When the noun co-occurs with indefinite quantifiers, such as *bazı* ('some'), on the other hand, overt marking on the noun is required, as shown in the example in (2b) below (Kornfilt, 1997, p. 259):

- (2) a. *iki elma -Ø*
 two apple -Ø
 'some apples'
 b. *bazı elma -lar*
 some apple -PL
 'some apples'

In comparison with the regular plural marking in Turkish, the German language has a much richer paradigm of plural inflection on nouns with irregularities. There are five plural inflection morphemes in German: the four overt morphemes *-en*, *-e*, *-er*, *-s*, and a zero morpheme (*-Ø*). Among these morphemes, *-e* and *-en* require stem alternation in some cases (changes of one of the vowels into an umlaut (¨) in the stem) (see Table 1 for examples). There is also a relationship between

Table 1. Types of plural inflection on German nouns, their frequency (adapted from Janda (1990)), and examples of their occurrence



the word's gender and the type of plural inflection (feminine “*die*,” masculine “*der*,” neuter “*das*”) (for details, see Wiese, 2009), but the selection of the plural type is complex. Table 1 presents an illustration with examples and the frequency of occurrence of these plural morphemes. The frequency information based on the analysis of the 200 most commonly used German nouns in this table is taken from Janda (1990).

As illustrated above, the overt number marking is abandoned in Turkish constructions with a numeral quantifier, and the overt marking is required only with indefinite plural-referring quantifiers (compare examples above in (2a) and (2b)). In German, on the other hand, the use of overt- and zero-marking is consistent across numerals and indefinite quantifiers, as displayed in Examples (3a) and (3b) below:

- (3) a. *der Tisch*
zwei Tisch -e
 ‘two girls’
manche Tisch -e
 ‘some tables’
- b. *das Mädchen*
zwei Mädchen
 ‘the tables’
manche Mädchen
 ‘some girls’

When the plural inflection systems in the two languages are compared, we see that both languages commonly use the overt marking of the plural morpheme with the indefinite plural quantifier ‘*bazı*’ in Turkish and ‘*manche*’ in German, which

are equivalent to ‘some’ in English. However, the languages differ in marking the number on nouns that co-occur with a numeral quantifier, such as ‘two,’ ‘five,’ etc. In contrast with Turkish, which obligatorily uses the zero morpheme, German uses the overt morpheme in most cases (88%). Therefore, there is a partial morphological overlap in the two systems. Table 2 illustrates the overlap and contrasts of the plural inflection paradigms in Turkish and German.

Table 2. Partial overlap in Turkish and German overt and zero plural-number markers on nouns

		Turkish	German	Overlap
PL (I) Numeral Quantifier	ZERO	+	+/-	Turkish allows only the ZERO option, but German allows the OVERT option in most cases.
	OVERT	-	+/-	*NO overlap for OVERT marking
PL (II) Indefinite Quantifier	ZERO	-	+/-	Both languages allow the OVERT option for plural marking.
	OVERT	+	+/-	*Overlap for OVERT marking

We tested the CLI phenomena by examining the time-locked online processing of plural noun phrases by conducting a Reaction Time (RT) experiment. In our RT experiment, the participants were asked to evaluate the grammaticality of the plural noun phrases and to respond as quickly as possible (see Section 3.3 for a detailed description of the experimental procedure). Therefore, the experimental design provided the ideal conditions to examine the effects of CLI by means of a demanding processing task under time pressure (for a comparison of offline and online experiments, and the advantages of the online tasks in general in psycholinguistic investigations, see Marinis (2010)).

In the current study, we investigate whether the heritage speakers of L1 Turkish with dominant L2 perform like monolingual Turkish speakers in the morpho-syntactic processing of overlapping structures in their L1, which is their weaker language. Secondly, we ask whether differences in these individuals’ L1 proficiency levels influence their processing performance. The data from heritage bilingual speakers in previous studies that have investigated the effects of CLI, have revealed that the heritage language is not open to direct influences of CLI. The heritage bilinguals focus instead on the differences between the languages and show sensitivity to these differences, which results in divergent outcomes from monolinguals in portraying patterns that reflect effects of interlanguage cue competition (Bamyacı, 2016; Kupisch, 2014). Unlike these previous studies, which have investigated interface phenomena, this study explores a structure that does not lie at interfaces; namely plural inflection in noun phrases that co-occurs with quantifiers.

Aside from the studies that have focused on the interface phenomena, other studies have observed effects of CLI in the case of structural overlap in the absence of a specific interface issue (Chan, 2010; Foroodi-Nejad & Paradis, 2009), and also in constructions in which there are neither structural overlaps nor an interface issue in various bilingual data (Nicoladis, 2002, 2003; Yip & Matthews, 2000). The present study asks whether heritage bilingual speakers show similar effects of interlanguage cue competition or direct effects of L2 in the form of CLI in processing L1 morpho-syntax when they are put in demanding performance conditions. The study also addresses whether L1 proficiency modulates these effects.

3. Experimental design

3.1 Participants

Two groups of speakers were tested in this study: a group of monolingually-raised L1 Turkish speakers and a group of L1 heritage speakers of Turkish with dominant German L2.

11 L1 Turkish speakers, who were monolingually-raised in Turkey, included six male and five female university students between the ages of 20 and 26 ($M = 22.45$). They were enrolled in various departments of different universities in Turkey and were tested during their first weeks in Germany as ERASMUS students at the University of Konstanz. None of these participants had learned a second language before the ages of 10 – 12 and they spoke standard Turkish as their L1.

22 L1 speakers of Turkish, who were born and raised in Germany, took part in this study. These participants included 12 female and 10 male university students between the ages of 20 and 32 ($M = 23.68$) enrolled in various departments at the University of Konstanz.

All heritage bilingual and monolingual speakers were right-handed according to the Edinburgh Handedness Inventory (Oldfield, 1971) and had no visual, auditory, or neurological problems according to their self-reports. All the participants received monetary compensation for their participation in the experiments.

Both parents of the heritage bilingual participants were Turkish and participants had only been exposed to Turkish and a limited amount of German until three years of age. Their exposure to German began around age three, when attending German kindergartens. All the heritage speakers had a native level of German verified by a C1 level score on the German Goethe Test (mistakes: 1–4, $M = 2.18$). They fell into high-intermediate and low-intermediate proficiency levels in Turkish according to their scores on the Dilmer Turkish Test:

- 11 High-Intermediate (1–4 mistakes, $M = 2.63$) L1 Turkish speakers, ages 20–28 ($M = 23.45$), seven females and four males;
- 11 Low-Intermediate (5–8 mistakes, $M = 6.54$) L1 Turkish speakers, ages 20–32 ($M = 23.90$), five females and six males.

The Turkish heritage speakers' language use and language skills were further evaluated using the three methods discussed below; all of which verified a dominant L2 German and a predominantly weaker L1 Turkish.

When asked in which language they could best express themselves, 15 of the 22 bilingual speakers chose both languages, 6 chose German, and 1 chose Turkish.

Bilingual speakers were asked to rate their language skills in both languages from excellent to poor. In the below graph 0 represents "excellent" and 2.5 represents "poor". The ratings of the four basic language skills of writing, speaking, reading, and listening in the two languages show that the bilingual speakers had better skills in German across all skill types (see the outcomes in Figure 1).

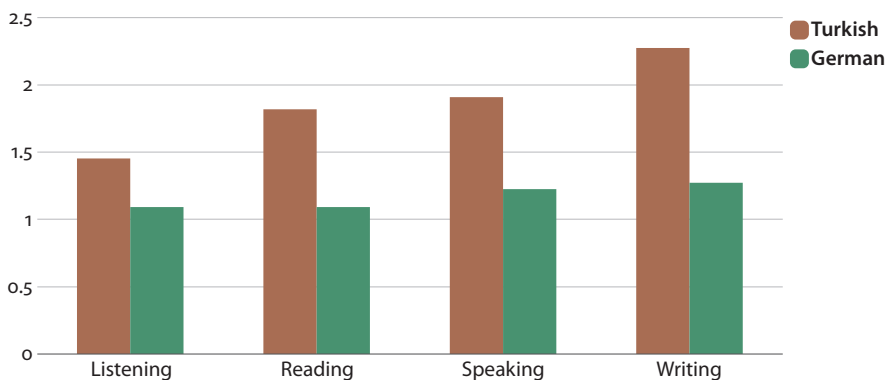


Figure 1. Self-ratings of bilingual speakers in the four basic language skills on a scale of 0 to 2.5 (0 = excellent; 2.5 = poor)

The bilingual speakers' language use at home, school, and other places throughout their lifetime was evaluated in detail by means of a questionnaire adapted from Weber-Fox & Neville (1996). Their responses to this questionnaire also revealed an increase in the amount of German they had used throughout the years (see the outcomes in Figure 2).

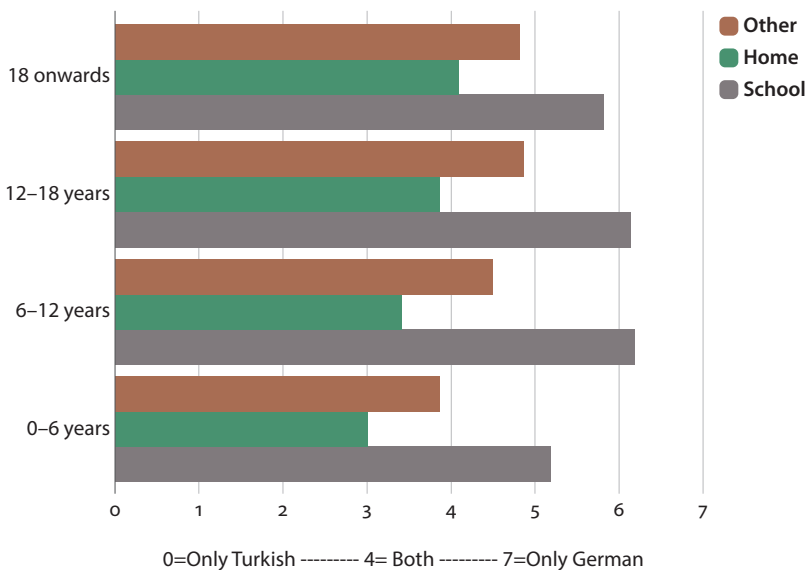


Figure 2. Use of the two languages throughout the lifespan

3.2 Materials

The nouns used in the experimental stimuli were chosen from a list of words known by two-year-old Turkish-German children (for details, see Rinker et al. 2011). The items were chosen from among words consisting of 3–6 syllables in order to avoid length effects, the average number of syllables being 3.9 or 4.9 across the conditions.

There were four conditions in the experiment, which consisted of the two plural inflection types in Turkish ((i) and (iii) below) and their violated counterparts ((ii) and (iv) below). Each condition consisted of 40 items, which yielded a total of 160 experimental items.

Experimental conditions

- | | |
|-------------------------------------|--|
| i. <u>PL (I) – ZERO CORRECT</u> | (<i>iki</i> N-Ø):
<i>iki kedi-Ø</i> ;
“two cat-Ø” |
| ii. <u>PL (I) – OVERT INCORRECT</u> | (<i>iki</i> N*- <i>lAr</i>):
<i>iki kedi*-ler</i> ;
“two cat*-s” |
| iii. <u>PL (II) – OVERT CORRECT</u> | (<i>bazı</i> N- <i>lAr</i>):
<i>bazı kedi-ler</i> ;
“some cat-s” |
| iv. <u>PL (II) – ZERO INCORRECT</u> | (<i>bazı</i> N*-Ø):
<i>bazı kedi*-Ø</i> ;
“some cat*-Ø” |

3.3 Procedure

Participants were tested individually in a dimly lit, noise-proof cabin inside our Neurolinguistics Laboratory.¹ The items were presented acoustically via headphones and were randomized differently for each participant. A white cross (2 × 2 cm) on a black background was shown on the computer screen as a fixation aid. The participants were instructed to decide if the item they had heard was grammatical or not and to respond as quickly as possible. The participants had a button box in their hands, and their left and right thumb rested on the two buttons on each side of the box. They were instructed to press the right button for the correct item and the left button for the incorrect item. The experiments lasted 20 minutes on average.

3.4 Data analysis

Responses were calculated from the deviation point (i.e., the point at which a morpheme could be identified as correct or incorrect). The deviation points were individually set for each item depending on the item length. The response time cut-off was set at below 100 ms and above 1500 ms, and the outliers were defined according to this cut-off (Luce, 1986; Ratcliff, 1993). The outliers and the inaccurate/wrong responses were also excluded from the data, which led to the exclusion of 24.56% of responses in the overall data.² Table 3 below presents an overview of the number of outliers of both groups. Accuracy and Reaction-Time analysis were subsequently conducted on the data using Linear Mixed Effects models (*lme* models) for statistical analysis in R (R Core Team, 2012), including the R packages *lme4* (Bates et al., 2012) and *languageR* (Baayen, 2008). Where appropriate, pairwise comparisons were conducted using t-tests with Bonferroni correction (Westfall et al., 2011, p. 29).

Table 3. Ranges and means of the wrong responses and the outliers in high-intermediate and low-intermediate bilingual groups

	Wrong responses	Outliers
Monolingual	Range: 1 to 10 M = 5.666	Range: 2 to 31 M = 17.583
High-Intermediate Bilingual	Range: 3 to 16 M = 11	Range: 12 to 32 M = 21.545
Low-Intermediate Bilingual	Range: 2 to 44 M = 23.636	Range: 11 to 66 M = 38.181

1. Neurolinguistics: Electroencephalography (EEG) laboratory, Department of Linguistics, University of Konstanz

2. 14.43% of the monolingual data, 29.63% of the bilingual data, 20.51% of the high-intermediate-bilingual data, and 38.75% of the low-intermediate-bilingual data.

3.5 Results

3.5.1 Results of the accuracy scores

3.5.1.1 Analysis of the accuracy scores in monolingual and bilingual groups

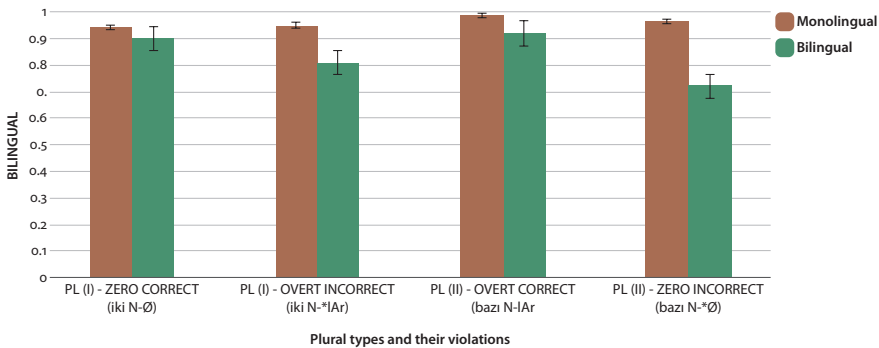


Figure 3. Accuracy scores of monolingual and bilingual speakers on the inflection of two plural types and their violation (error bars represent ± 2 standard errors (SE))

Figure 3 above illustrates the accuracy scores of the monolingual and bilingual speakers on the inflection of two plural types in Turkish and their violated counterparts (see examples for each bar below).

Examples for each bar represented above in Table 1.

- | | | | | |
|----|--------------------------|---------------|------------------------|---------------|
| a. | PL (I) – ZERO CORRECT | (iki N-Ø): | <i>iki kedi-Ø</i> ; | “two cat-Ø” |
| b. | PL (I) – OVERT INCORRECT | (iki N*-IAr): | <i>iki kedi*-ler</i> ; | “two cat*-s” |
| c. | PL (II) – OVERT CORRECT | (bazı N-IAr): | <i>bazı kedi-ler</i> ; | “some cat-s” |
| d. | PL (II) – ZERO INCORRECT | (bazı N*-Ø): | <i>bazı kedi*-Ø</i> ; | “some cat*-Ø” |

The visual inspection of Figure 3 suggests that the accuracy scores of the monolingual speakers, which are illustrated in the dark gray bars in the graph, show a ceiling effect in which the correct and incorrect use of the zero and overt plural morphemes receives high accuracy scores with narrow SEs. The figure illustrates a similar pattern for the bilingual speakers, who have high accuracy scores for the correct use of the zero and overt plural morphemes, with large SEs indicating a high within-group variation. Finally, bilingual speakers show low accuracy scores for the violated conditions.

In the monolingual group, neither plural types nor their violated counterparts differ from each other to a considerable extent. Table 4 below presents a summary of the t-test results.

Table 4. Comparison of the correct use of plural types and their violation in the monolingual group

	Participant analysis				Item analysis			
	<i>t-value</i>	df	MD	<i>P</i>	<i>t-value</i>	df	MD	<i>p</i>
PL (I) Correct vs. Incorrect	1.4907	10	0.0227	0.1669	21.949	79	0.0233	0.0311
PL (II) Correct vs. Incorrect	-0.4120	10	-0.0068	0.689	-0.2973	79	-0.005	0.767

The graph in Figure 3 above reveals that the bilingual accuracy scores for the violation of these plural morphemes are considerably lower than their unviolated counterparts. Despite the lack of difference between the violated and unviolated use of the two plural types in Turkish by the monolingual speakers, the bilingual speakers performed poorly when rejecting the incorrect stimuli. Paired *t*-tests confirm that the difference between the accuracy scores for the correct use of the plural types and their violation is significant. Table 5 below presents the *t*-test results.

Table 5. Comparison of the correct use of plural types and their violation in the bilingual group

	Participant analysis				Item analysis			
	<i>t-value</i>	df	MD	<i>p</i>	<i>t-value</i>	df	MD	<i>p</i>
PL (I) Correct vs. Incorrect	4.935	21	0.2	0.069	9.674	79	0.2	0.000
PL (II) Correct vs. Incorrect	2.170	21	0.090	0.041	4.668	79	0.090	0.012

When the accuracy scores of the two groups are compared with the *lme* model, a significant main Group effect, $p < 0.000$; as well as an interaction effect of Group and Plural Types, $p = 0.00$; and Group and Violation, $p = 0.020$ emerges. However, the three-way interaction of Group*Plural Type*Violation does not become significant, $p = 0.658$. Table 6 below presents a summary of the *lme* results for the Group comparison.

Table 6. *lme* comparison of monolingual and bilingual groups in their accuracy scores

	Estimate	SE	<i>z</i> -value	<i>p</i>
(Intercept)	3.061	0.175	17.415	0.000
Plural Type (I – II)	-0.310	0.195	-1.589	0.112
Violation (Correct – Incorrect)	0.957	0.195	4.890	0.000
Group (Monolingual – Bilingual)	1.656	0.322	5.142	0.000
Plural Type * Violation	-0.903	0.389	-2.321	0.020
Group * Plural Type	-1.017	0.317	-3.205	0.001
Group * Violation	-0.927	0.317	-2.921	0.003
Group * Plural Type * Violation	-0.280	0.634	-0.442	0.658

3.5.1.2 Accuracy results for high- and low-intermediate groups

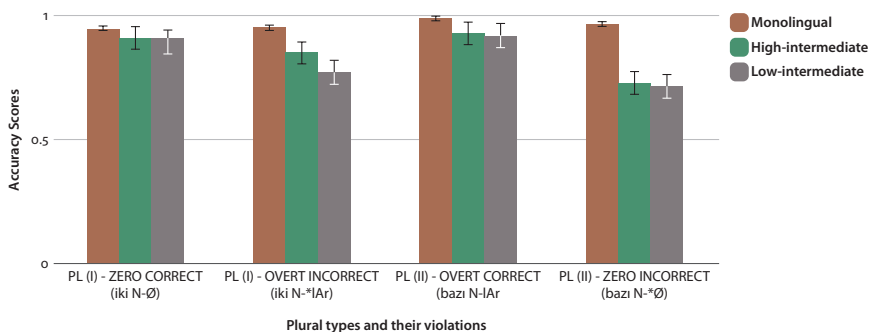


Figure 4. Accuracy scores of monolingual and high and low-intermediate bilingual speakers on the two plural types and their violation (error bars represent ± 2 standard errors (SE))

When the accuracy data comparing the high-intermediate and low-intermediate groups to the monolingual group, is analyzed via *lme* statistics and pairwise t-tests within and across groups, the results consistently replicate the entire results for the complete bilingual group reported in the previous section, and they are thus not repeated here.

Low-intermediate bilingual speakers do not perform differently from high-intermediate regarding the correct use of the two plural types, whereas they distinguish the violation of the two plural types from one another, and the scores for Plural Type (II) are lower than those for Plural Type (I). These results are consistent across the combined bilingual group and high-intermediate bilinguals and are marginally significant for low-intermediate bilinguals. The t-test results with item analysis are displayed in Table 7 below.

Table 7. Comparing the plural types with each other in the complete bilingual group as well as in high-intermediate and low-intermediate proficiency groups

Heritage bilingual speakers				
	<i>t-value</i>	<i>df</i>	<i>MD</i>	<i>p</i>
Correct	-0.984	79	-0.020	0.327
PL (I) vs. PL (II)				
Incorrect	3.078	79	0.088	0.002
PL (I) vs. PL (II)				
High-intermediate level heritage bilinguals				
	<i>t-value</i>	<i>df</i>	<i>MD</i>	<i>p</i>
Correct	-0.476	79	-0.010	0.635
PL (I) vs. PL (II)				
Incorrect	3.635	79	0.125	0.000
PL (I) vs. PL (II)				
Low-intermediate level heritage bilinguals				
	<i>t-value</i>	<i>df</i>	<i>MD</i>	<i>p</i>
Correct	-1.059	79	-0.026	0.292
PL (I) vs. PL (II)				
Incorrect	1.667	79	0.054	0.099
PL (I) vs. PL (II)				

3.5.1.3 Conclusions on the accuracy scores

The monolingual and bilingual groups do not differ from each other in their accuracy scores according to the *lme* results, because of the three-way interaction of Group*Plural Type*Violation. Both groups were accurate in distinguishing between the correct and incorrect use of the two different plural inflection types in Turkish. Even though there is no group difference despite the ceiling effect in the monolingual data, which display high scores across all conditions, the bilingual speakers' accuracy scores vary between correct and incorrect conditions, and bilinguals' scores are lower on violations in both plural types, especially for Plural Type (II).

Furthermore, the consistency of the outcomes for the high- and low-intermediate-level speakers with those of the complete bilingual group reveal that the level of L1 proficiency in Turkish does not lead to a significant difference in accuracy scores. Although the bilingual group with lower proficiency has lower scores in general, the difference between the high- and low-intermediate groups did not reach significance in the *lme* analysis.

Overall, CLI from L2 German does not emerge in the accuracy data. On the contrary, bilingual speakers performed better in Plural Type (I), which is different from German that allows *only* the zero option. Bilingual speakers performed worse in Plural Type (II), in which both languages allow only the overt option. That is, the presence of the overt option in both languages did not facilitate ease in morpho-syntactic processing. Taken together, the bilingual data does not imply any CLI from the dominant L2; and L1 proficiency does not have an influence on the outcomes of the accuracy scores. The bilingual group (including both proficiency levels) performed lower for the structure that did not overlap between the languages. The data shows that the bilingual speakers focused on the differences between the languages rather than on the similarities.

3.5.2 Results of the reaction time analysis

3.5.2.1 Reaction time results for monolingual and bilingual groups

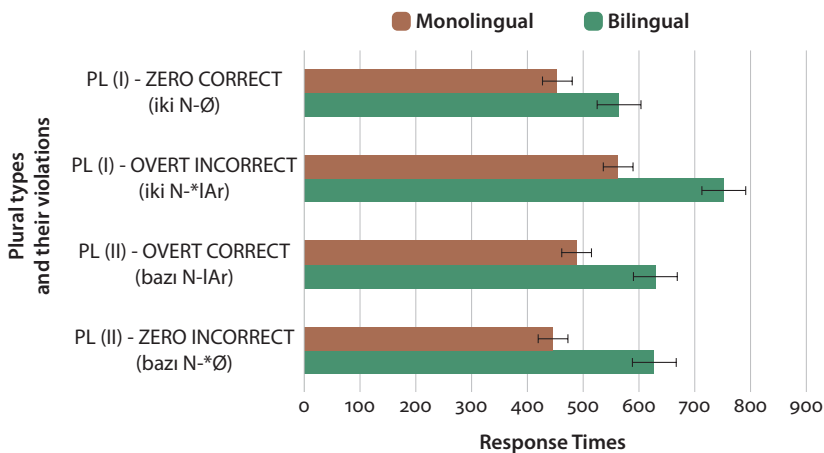


Figure 5. Reaction time of monolingual and bilingual speakers to the two plural types and their violation (error bars represent ± 2 standard errors (SE))

The visual inspection of Figure 5 suggests that the reaction times of the monolingual speakers was shorter than that of bilingual speakers across all conditions. This interpretation is supported by the *lme* results, which revealed a significant main effect of Group, a significant two-way interaction effect of Group and Violation, and a marginally significant three-way interaction effect of Group*Plural Type*Violation. Table 8 below presents a summary of the *lme* results for the group comparison.

Table 8. *lme* comparison of monolingual and bilingual groups in their reaction time

	Estimate	SE	<i>t</i> -value	<i>p</i>
(Intercept)	2.666	0.022	120.11	0.000
Plural Type (I – II)	0.031	0.010	3.10	0.002
Violation (Correct – Incorrect)	-0.057	0.010	-5.67	1.413
Group (Monolingual – Bilingual)	-0.123	0.044	-2.80	0.004
Plural Type * Violation	-0.227	0.020	-11.28	0.000
Group * Plural Type	0.018	0.016	1.10	0.139
Group * Violation	0.034	0.016	2.12	0.020
Group * Plural Type * Violation	-0.049	0.032	-1.51	0.070

Although the bilingual speakers have response latencies across the experimental categories, and they significantly differ from the monolinguals, the pattern they show is the same as that of monolingual speakers.

3.5.2.2 Reaction time results for the high and low-intermediate bilingual groups

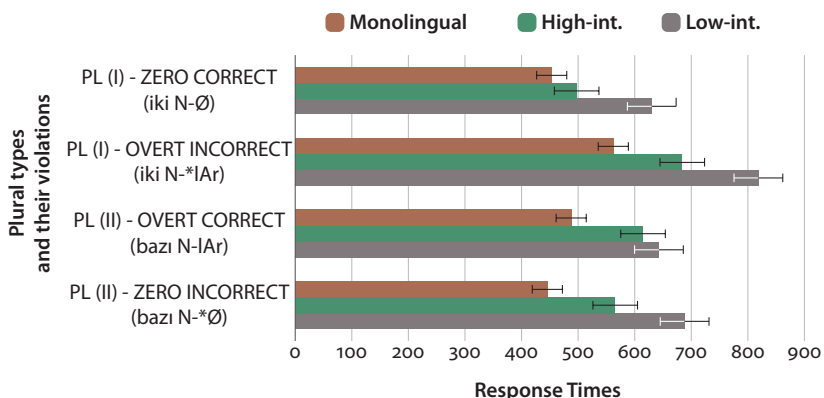


Figure 6. Reaction times of monolingual as well as high and low-intermediate bilingual speakers to the two plural types and their violation (error bars represent ± 2 standard errors (SE))

The graph in Figure 6 above depicts the reaction times of the monolingual group (the top bars), the high-intermediate bilingual group (the middle bars), and the low-intermediate bilingual group (the bottom bars). Both the monolingual group and the two bilingual groups show a similar pattern in their reaction times to the correct and incorrect conditions. Therefore, the groups differ quantitatively from each other. Moreover, when the bilingual group is split into high-intermediate and low-intermediate groups, a clear gradation emerges between the two proficiency

groups: The low-intermediate group has longer reaction times than the high-intermediate group. These observations are proven by the significant three-way interaction effect of Group*Plural Type*Violation in *lme* analysis when the high- and low-intermediate groups are compared. The low-intermediate group also differs from the monolingual group. However, the high-intermediate group does not differ from the monolingual group in a significant three-way interaction – that is, the high-intermediate group patterns with the monolingual group. Table 9 below presents a summary of *lme* group comparisons.

Table 9. *p* values of the *lme* comparison of reaction times across groups

	High-intermediate vs. Low-intermediate	Monolingual vs. High-intermediate	Monolingual vs. Low-intermediate
Plural Type	0.038	0.075	0.000
Violation	0.225	8.122	4.876
Group	0.048	0.079	0.000
Plural Type*Violation	0.018	0.000	0.020
Group*Plural Type	0.003	0.009	0.251
Group*Violation	0.083	0.155	0.009
Group*Plural Type*Violation	0.000	0.171	0.001

3.5.2.3 Conclusions on the reaction times

Although not apparent in the accuracy analysis, a clear group difference and the gradation of bilingual groups according to their L1 proficiency levels is apparent in the analysis of the reaction time data. It turns out that the high-intermediate bilingual group does not differ from the monolingual group in processing times, but the low-intermediate bilingual group differs from both the high-intermediate bilingual group and the monolinguals. To conclude, these outcomes reveal that the L1 proficiency level does not have a clear influence on accuracy rates, but L1 proficiency effects become apparent for processing times. These findings lend support to the claim that the proficiency level in the L1 heritage language influences performance in processing, especially when the processing task is demanding (in this case, processing under time pressure) (Bowles, 2011; Dąbrowska, 2012; Jegerski et al., 2016; Montrul et al., 2014; Sorace & Serratrice, 2009).

4. Conclusion and discussion

It is widely accepted in the bilingualism literature that bilingual speakers differentiate between their two languages early on in childhood. In recent years, the focus has shifted from the issue of language differentiation to the degree of interaction between the two systems and the factors affecting the phenomena related to the effects of CLI. The goal of the present study was to understand whether adult heritage bilingual speakers display CLI effects – or rather, effects of interlanguage cue competition. Additionally, the interplay between the L1 proficiency and the CLI phenomena was explored by observing processing patterns in heritage speakers with high and low L1 proficiency. To this end, the processing of overlapping morphosyntactic structures was examined by means of an RT experiment, and the accuracy scores and response-time data were analyzed. As CLI has been suspected to occur at overlapping structures in the two languages of the bilingual speakers, we took a morphosyntactic structure that constitutes partial overlap in Turkish and German, namely the plural inflection on noun phrases. We investigated the potential transfer effects of overlapping structures from the dominant language and the effects of interlanguage cue competition in others.

The accuracy data revealed that the L1 Turkish of the heritage speakers was immune to CLI effects from their L2 German. The use of the overt number marking (which is allowed in both languages) did not facilitate accuracy in responses to this condition; on the contrary, the bilingual speakers performed better at zero-number marking in Turkish, which differs from German. In addition, the accuracy data revealed that rejecting the violated condition is more difficult than accepting the correct condition across both plural types. These processing patterns were consistent in the analyses across the entire bilingual group, the high-intermediate group, and the low-intermediate group – that is, the proficiency level in L1 did not influence the accuracy rates.

We analyzed the accuracy data from a processing-based framework, namely that of MOGUL. The common prediction in the context of CLI phenomenon is that, the effects from the dominant L2 should appear in the L1 due to the higher activation levels of the common structure in the two languages. Following this argumentation, we would have expected to see high accuracy rates or even an overuse of the overt marking due to its very high activation levels, based on reinforcement of this effect from both languages' grammars. Similarly, the high activation level of the overt marking could also have influenced the performance of the plural type, which requires zero-marking only in Turkish, and the speakers would have shown lower performance by accepting the overt option or responding more slowly to this condition. However, the data does not reveal any of these effects. Nevertheless, the same processing-based account can help us interpret the patterns that emerged in

this data differently. The bilingual speakers may have become highly proficient in demoting the competing structures in the “other” language thanks to their excessive experience in taking control of the two different languages from early childhood through to adulthood. They are clearly aware of the differences between the languages, and they also keep their focus on the differences between the two languages in processing. Although these bilingual speakers can exclude the effects from their dominant L2, the reduced processing experience in their L1 may cause the L1 structures to continue competing during L1 processing. In the case of nouns co-occurring with numerals, Turkish and German are different. Turkish rejects overt marking, whereas German requires overt marking in most cases. Bilingual speakers are very good at making this contrast and differentiating the two languages from each other. However, in the case of overt marking on nouns that co-occur with indefinite quantifiers (for which both German and Turkish require overt marking), bilingual speakers are hesitant in accepting the correct overt option. This might stem from the ambiguous input in their L1, in which both the overt and zero options are available and keep continually competing with each other in the bilingual mind.

The interpretation of the response times, on the other hand, reveals that the high-intermediate heritage bilingual speakers do not differ from the monolinguals in the time they take to respond to stimuli, whereas the low-intermediate heritage bilinguals differ from both monolingual speakers and high-intermediate heritage bilinguals. We can therefore conclude that L1 proficiency level interacts with the processing speed. We can provide an account of the response-time results that is compatible with the account we provided for the accuracy data within the MOGUL framework. The high-intermediate-level speakers, while not advanced-level speakers of their L1, have gained enough processing experience to complete the tasks within the same time frame as the monolingual speakers. Whereas processing may take longer for speakers with lower proficiency levels, assuming that the structures have low activation levels due to the lack of processing experience, the competition of the zero and overt structures lasts longer and the process of selecting the most appropriate structure takes longer. Assuming that language knowledge results from processing experiences, these speakers must have less processing experience.

The heritage speakers’ immunity to the effects of CLI from the dominant language and their ability to differentiate the two languages very clearly during language processing could be explained by Kellerman’s (1977, 1979) notion of “psychotypology”, which refers to the learner’s perception of the similarity of languages. As this argument emerges based on the findings obtained in this study, it could be investigated in future research on heritage bilingual speakers. Psychotypology applies to both language-general and structure-specific similarities and differences, which are termed general and item-specific psychotypology, respectively. According to Kellerman (1983), psychotypology modulates the effects of CLI. If the speaker

perceives the two languages as being different from each other, s/he will suppress transfer and CLI of all types, even when the languages contain overlapping structures. Likewise, the perception of the two languages as being similar would make the speaker feel more liberal in letting the two languages interact with each other, which would in turn give rise to effects of CLI. In this view, “not everything that looks transferable is transferable” (Kellerman, 1983, p. 113). Speakers’ perception of the distance between the languages constrains the influences of the two languages on each other. When the two languages are perceived as being typologically different, the CLI effects can be inhibited, even for certain congruent structures. Apart from the speaker perception, various studies investigating different L1s on the same L2 have also shown that the actual typological closeness of L1 and L2 facilitates language transfer, whereby language typology overrides other important variables (De Bot, 1992; Poullisse, 1990; Sabourin et al., 2006), such as the amount of L2 exposure (Jarvis, 2000). In the heritage language acquisition context, it is plausible that the heritage speakers set a clear divide between their “home” language and the dominant language, which are used in separate contexts by people from different socio-cultural backgrounds. Therefore, the heritage bilingual speakers’ perception that the two languages are different from each other might lead them to inhibit CLI effects, even when there are overlapping structures that show similarities between the two languages. As the research objectives did not cover examination of this notion, we will not evaluate more on it here and will leave it to future research.

The results presented here shed light on the processing of morpho-syntax in the L1 of heritage speakers. These results are consistent with those of Kupisch (2014) and Bamyacı (2016) in that the heritage language is immune to effects of CLI from the dominant language and that the output of heritage bilinguals reflects interlanguage cue competition in their L1. Bamyacı (2016) investigated the CLI in overlapping structures at the semantics-morphosyntax- and pragmatics-morphosyntax interfaces and reported that heritage bilinguals also did not show effects of CLI. The bilingual speakers instead showed higher sensitivity to semantic and pragmatic cues and provided finer distinctions of the hierarchical categories concerning the factors influencing the available options. As the current data does not lend itself to effects of gradience due to the nature of structures that do not lie at interfaces in the current study, such a gradation cannot emerge in the data. The common finding between the current study and earlier studies is the exclusion of CLI from the dominant language and the emergence of interlanguage cue competition. We interpret these outcomes in the MOGUL framework referring to the competing structures in the bilingual mind and argue that an additional psycholinguistic factor might also contribute to the clear separation of the two languages in the mind of heritage speakers.

Funding

This research study was funded by the German Federal Ministry of Education and Research (BMBF) as part of the project ‘Language processing in Turkish children with German as a second language: Neurophysiological and linguistic investigations’ (No. 01GJ0978).

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Subordination in children acquiring Turkish as a heritage language in Sweden

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This paper investigates Turkish subordinate constructions in 201 fictional narratives told by 102 bilingual Turkish-Swedish children (age 4 to 7), growing up in Sweden with Turkish as a heritage language. All narratives were elicited with the picture sequences of the Multilingual Assessment Instrument for Narratives (MAIN, Gagarina et al., 2012). We analyze the characteristics of the Turkish relative, complement and adverbial clauses in the children's narratives and in their responses to story comprehension questions from quantitative and qualitative points of view. The children produce a wide variety of subordinate constructions, going beyond what is typically reported for Turkish heritage language acquisition elsewhere. In the cross-sectional data sampled, there is considerable individual variation concerning subordination, but relatively little development from age 4 to 7, as some of the youngest children already master Turkish nonfinite subordination, and older children do not necessarily use subordination more frequently or in more adultlike ways than younger ones. Certain types of subordination are rare (e.g. relativization) or even absent in the data (complementation with object control). Other types of subordinate constructions are very frequent and nearly always conform to standard adult Turkish (e.g. complementation with subject control; adverbialization with simple converbs). However, the precise morphological form and function of subjunctors in causal and purposive adverbial clauses (an aspect rarely discussed in the Turkish acquisition literature) is not yet mastered by the oldest children in the sample (age 7). In general, the Turkish-Swedish data point to relatively successful and early acquisition of nonfinite subordination morphology, unlike what has been reported by a number of earlier studies of children acquiring Turkish in a bilingual and/or heritage language context in other countries (e.g. Boeschoten, 1990; Pfaff, 1991, 1993; Aarssen 2001; Herkenrath & Karakoç, 2002; Rehbein & Herkenrath, 2015). Our finding that bilingual children acquiring Turkish are able to produce much more complex sentences than originally claimed in the literature is suggested to be due to differences in setting, sampling and data elicitation.

Keywords: Turkish-Swedish bilingualism, child language acquisition, subordination, causal clauses, purposive clauses

1. Introduction

This paper investigates the development and use of Turkish clausal subordination in bilingual Turkish-Swedish children age 4 to 7, growing up in Sweden with Turkish as their heritage language. This is a population that has not been previously studied. The children are exposed to Turkish mainly in the home, whilst Swedish is the language of society at large and of (pre)school, which the children attend from an early age.

Subordinate constructions in Turkish and Swedish are frequent in both informal and formal language, in spoken and in written language. However, Turkish and Swedish are characterized by typologically different strategies. Turkish subordinate clauses are generally based on bound nonfinite verb forms (i.e. participial, verbal-nominal or converbial subjunctors). In accordance with Turkish verb-final word order (SOV), these are for the most part left-branching structures preceding their head nouns or matrix clauses.¹ Depending on the type of the subordinate clause, overt subjects are mostly marked in the genitive case, while the possessive suffixes attaching to the nonfinite verb forms agree with the subject in person and number. Swedish subordinate clauses, on the other hand, are formed by means of clause-initial free subjunctors and are generally based on finite verbs. They typically follow their head nouns or matrix clauses, in accordance with the verb-complement word order (VO) and the right-branching structure of Swedish. These differences are illustrated in the following examples, where the subordinate clauses appear in boldface.

- (1) a. Tur. *köpek fareyi yakalamak için atladi.*
 dog mouse-ACC catch-MAK.INF for jump-PST
 ‘The dog jumped in order to catch the mouse.’
- b. Swe. *hunden hoppade fram för att han skulle fånga musen.*
 dog-DEF jump.PST forward for that he should.PST
 catch mouse-DEF
 ‘The dog jumped forward in order to catch the mouse.’
- (2) a. Tur. *sonra köpek kedinin düştüğünü gördü.*
 then dog cat-GEN fall-DIK.PAR-PSS3SG-ACC see-PST
 ‘Then the dog saw that the cat had fallen.’
- b. Swe. *sen såg hunden att katten hade ramlat.*
 then see.PST dog-DEF that cat-DEF have.PST fallen
 ‘Then the dog saw that the cat had fallen.’

1. For right-branching and finite complement-like *ki*-clauses, see Section 5.4.

Subordinate finite clauses are not only frequent in Swedish, but they are also produced cross-linguistically early by Swedish-speaking (monolingual) children (at age 2–3) and assumed to be mastered by age 3;0–3;6 (e.g. Lundin, 1987; Håkansson & Hansson, 2000; Waldmann, 2008). By contrast, the existing literature generally gives an account of late acquisition of Turkish nonfinite clauses by monolingual and bilingual children, and describes considerable challenges for children acquiring the language in bilingual contexts (see e.g. Aksu-Koç & Slobin, 1985; Boeschoten & Verhoeven, 1986; Pfaff, 1993; Aksu-Koç, 1994, 2010; Aarssen, 1996; Küntay & Slobin, 1999; Herkenrath & Karakoç, 2002, 2007; Herkenrath et al. 2003; Backus, 2004; Treffers-Daller et al. 2007; Bayram, 2013; Onar Valk, 2013; Onar Valk & Backus, 2013; Herkenrath, 2013; Rehbein & Herkenrath, 2015; Schroeder, 2016).

Some researchers have suggested that bilingual children acquiring Turkish as a heritage language “use a much more restricted inventory of forms” (Pfaff, 1994, p. 85), that they “avoid certain structures” (Backus, 2004, p. 687) and generally show a slower development than Turkish monolingual age peers. Pfaff (1991, p. 124) even goes as far as to state: “The complex syntax required for embedded sentential modification is clearly late in appearing in the second generation migrant children, and for some, it may be entirely lacking.”

This situation motivated us to conduct a thorough analysis of the given grammatical domain in our Turkish-Swedish narrative data, especially in light of the fact that the contact languages involved are typologically divergent by virtue of making use of different strategies. We analyze the characteristics of the Turkish relative, complement and adverbial clauses as found in our data from 102 children, from quantitative and qualitative points of view. We are interested in documenting and describing the development of subordination in child heritage speakers Turkish in Sweden. We ask the following research questions:

- Which types of subordinate clauses are produced by the children, and how often?
- Which morphological forms do these subordinate clauses take?
- In which contexts do the children produce such constructions (narratives vs. responses to questions)?
- How close are the children’s subordinate constructions to Standard Turkish? Are nonstandard or ungrammatical forms being used? If so, which, and how prevalent are these?
- Can any development with age be discerned from 4 to 5, 6, and 7 years?
- What might be the contributing factors behind the distributional and developmental patterns observed?

The results may inform international research on the acquisition of Turkish as a heritage language and child language acquisition of Turkish in general.

The paper proceeds as follows. Section 2 (Methodology) describes the participants, as well as the materials, procedure and corpus. Section 3 provides a general overview of the findings, including distribution and frequencies for the domains of subordination. This is followed by three longer sections that investigate the types of subordinate clauses in greater detail, Section 4 for relativization, Section 5 for complementation, and Section 6 concerning adverbialization, including a number of subsections. Section 7 concludes the paper with a summary and discussion.

2. Method

2.1 Participants

Since migration from Turkey began on a large-scale in the mid-1960s, many children have grown up and are growing up in Sweden with Turkish as their heritage language.²

In the present study, 102 Turkish-Swedish bilingual children aged 4 to 7 years participated as part of a larger research project (BiLI-TAS, Bohnacker, 2013). The children were growing up in urban areas of central Sweden. Only children who were able to speak both Turkish and Swedish were included. No child had any type of diagnosed language impairment, neuropsychiatric disorder or hearing disorder. The overview in Table 1 shows that distribution across age and sex was roughly even.

Table 1. Distribution of the Turkish-Swedish children across age groups, $N = 102$

Age	4 years	5 years	6 years	7 years
N	25	23	26	28
Girls/boys	13/12	13/10	15/11	14/14
Age range	4;0–4;11	5;1–5;11	6;0–6;11	7;0–8;1
Mean age	4;7	5;6	6;6	7;6

Note: The 7-year group includes three children who were recruited at age 7 but had passed their 8th birthday by the time they were tested.

2. The number of speakers of Turkish in Sweden can be estimated to be around 100,000 (Bohnacker, 2020), based on census data for country of origin (47,060 Turkey-born residents, Statistics Sweden, 2017) and Sweden-born residents with Turkey-born parents (49,555, Statistics Sweden, 2017). This corresponds to 1% of the Swedish population. In contrast to other Western European countries such as Germany, Austria, the Netherlands, Belgium and France, migrants from Turkey have not primarily come to Sweden as labourers, but as political refugees and/or family members (via marriage and family reunification) with a variety of educational and socio-economic backgrounds (Alpay, 1980; Svanberg, 1988; Lundberg, 1991; Levin & Başer, 2017; Migrationsverket, 2017; Bohnacker & Öztekin, in progress).

The children came from 50 preschools and schools in the Greater Stockholm area and two nearby larger cities. Parents of children willing to participate gave prior written consent and filled in a detailed language and social background questionnaire in Turkish or Swedish (for details, see Bohnacker, 2020; Öztekin, 2019). Some of this background information is summarized here as orientation for the reader, and also to be able to relate back to it when the children's subordinate constructions are discussed.

Nearly all children (92%, 94/102) were born and had lived in Sweden all their lives, only few (8%, 8/102) had immigrated to Sweden. For nearly all children, both parents were first-generation immigrants from Turkey or one first-generation and one second-generation parent. 80% of the parents had been born in Turkey, 15% had been born in Sweden, 2% had been born in a third country, and for 3% this information was missing. Turkey-born parents came from many different regions of Turkey.³ A few children (6%) had two parents who were born in Sweden and had grown up bilingually themselves with Turkish roots. Only few children (8%) had a parent who was a native speaker of Swedish (L1, first language). Most parents had Turkish as their L1. For 15% of the children, both parents had another L1 than Turkish (mostly Kurdish) but stated that Turkish was also spoken in the home on a regular basis.

According to parental report, most children were continuously exposed to Turkish from birth. While age of onset for Swedish varied (for details, see Bohnacker, 2020; Öztekin, 2019), 54% were exposed to Swedish before age 2;0, and for the large majority (82%), regular exposure to Swedish started before age 3;0. Participants exposed to Swedish after age 3 were older children born in Turkey, who had immigrated to Sweden with their families.

All children attended (pre)school on a daily basis, for 32 hours per week on average (range 6–48 hours, most commonly 30–40 hours).⁴ Preschools were run in Swedish, though the extent to which monolingual Swedish or multilingual staff was employed varied. 25% of the children attended institutions where a staff member sometimes spoke Turkish with them. Many (pre)schools were located in multi-ethnic low-status urban areas where a multitude of languages are spoken. (There are no Turkish-dominant urban enclaves in Sweden, in contrast to other West European cities.)

3. Some parents came from the Konya district in Central Anatolia, where the very first Turkish labour migrants to Sweden originated, but many parents had their roots in other regions.

4. The 4- and 5-year-olds attended preschool (many of them already from age 1.5 or 2), most 6-year-olds attended preparatory class (grade 0), and most 7-year-olds attended grade 1 of primary school. (Primary school starts at age 7 in Sweden.)

40% children were considered by their parents to have equal proficiency in both languages. For nearly as many (36%), Turkish was rated the stronger language, and for the remaining 24%, Swedish was rated strongest. All participants were active bilinguals of Turkish and Swedish, but 6% (6/102) also spoke a third language: Kurdish (Kurmanji), Zaza (Dimili), German or English. For no child was this third language rated as strong as Turkish or Swedish. Some more children were exposed to a third language but did not speak it.

Parental education levels ranged from less than six years of primary education to completed BA, MA and PhD degrees. The majority of parents had completed upper secondary school (12 years of schooling), but had no tertiary education. Occupations were extremely diverse, ranging from elementary occupations to senior professionals. For the majority of children, parents reported regular book reading, storytelling and singing activities at home, generally somewhat more so for Turkish than for Swedish, though there was considerable individual variation.

The backgrounds of the participants confirm the general impression concerning families with Turkish as a heritage language, namely that endogamy and a continued influx from Turkey revitalize and keep up the use and transmission of the home language to the next generation (e.g. Backus, 2004; Aktürk-Drake, 2018).⁵ Turkish is regarded as important alongside the majority language Swedish, which the children are exposed to from a very early age via institutionalized childcare, as Swedish preschools are widely available and affordable. The home environment is predominantly Turkish, and the heritage language is often fostered by a variety of language activities (for more details, see Bohnacker, Öztekin, & Lindgren, in press; Bohnacker & Öztekin, in progress: Öztekin, 2019). At the same time, it should not be forgotten that Turkish-speaking families in Sweden are heterogeneous and also include many Kurdish-L1 parents, who may bring up their children in a trilingual environment.⁶

2.2 Materials, procedure and corpus

The children carried out a test battery of language production and comprehension tasks in Turkish and Swedish on separate occasions (for details see Bohnacker, 2020; Öztekin, 2019). Each child was seen individually, in monolingual mode.⁷ All

5. International surveys on identity in urban multilinguals also report a high degree of Turkish language maintenance in their adolescent and adult second-generation participants in Sweden (Vedder & Virta, 2005; Nygren-Junkin, 2008; Westin, 2015; Aktürk-Drake, 2017).

6. One third of Sweden's Turkish-speaking population has been estimated to be Kurdish (Westin, 2003, p. 99; Aras, 2015).

7. Interacting with the child in monolingual Turkish mode means that the experimenter did not speak Swedish but gave the impression of being a monolingual Turkish speaker.

sessions were audio- and video-recorded. Relevant for the present study are the oral narrative tasks. To elicit two comparable narratives per language from each child, the Multilingual Assessment Instrument for Narratives (MAIN, Gagarina et al. 2012) was administered following standard procedure (Gagarina et al. 2012, 2015). Colored picture sequences parallel in length and story structure (Cat, Dog, Baby Birds, Baby Goats) were presented as a fold-out strip. The child told the story with minimal prompting from the experimenter and then answered 10 comprehension questions about each story. The narratives and the answers to the questions were transcribed verbatim from the recordings in CHAT format (Codes for the Human Analysis of Transcripts, MacWhinney, 2000), to allow for automated lexical searches as well as manual analyses.⁸ Turkish orthography was used unless pronunciation deviated greatly from the standard. Table 2 gives an overview of the Turkish narrative data.

Table 2. The Turkish BiLI-TAS narrative corpus, 102 children

	Narratives N = 201	Answers to comprehension questions N = 1,987
Word tokens	14,030	ca. 7,900

Note: A few children did not tell both stories, and a few children were not asked all questions, due to noncompliance or experimenter error. Word tokens exclude fillers, broken-off words, repetitions, restarts, imitations and responses not related to the narrative.

To extract the Turkish subordinate clauses, a native Turkish research assistant did a preliminary search of the transcribed narratives (the results of which are discussed and compared with the children's Swedish subordinate clauses in Bohnacker (2020)). For the present study, the second author carried out an independent manual search of the entire Turkish narrative and comprehension material, analysing subordinate constructions according to morphological form, syntactic and semantic function. These results are reported in the next sections. We grouped subordinate constructions by type (and where necessary, subtype) and investigated them for all 102 children combined, as well as for each of the four age groups. To give an indication of development beyond absolute figures, means for each age are

8. The data were transcribed by experienced, linguistically trained transcribers, doing multiple passes over each segment of the recording, letting the transcript rest and then listening to the recording again. Raw transcriptions were made by a native Turkish research assistant. These transcriptions were later finalized by a native Turkish doctoral student of linguistics. The transcripts of 21 children (21%, 3,050 words) were checked again by the Turkish research assistant. Some children were rechecked because their speech had been especially difficult to transcribe, and some were randomly chosen. The agreement rate was 99.3%. In cases of disagreement, transcripts were checked again against the audio files. Transcriptions were thus done in a careful and consistent manner.

provided. We have chosen to keep the figures for the narratives and the answers to comprehension questions separate, as the frequency of certain types of subordination differs markedly between the two genres.

3. Overall frequencies of clausal subordination

Table 3 provides a first, broad-brush breakdown of the nonfinite subordinate constructions in our corpus according to three syntactic functions, relativization (where the subordinate clause serves as an attribute of a noun or NP in the higher, or matrix, clause), complementation (where the subordinate clause serves as the subject or object within the higher clause), and adverbialization (where the subordinate clause serves as a modifier of the VP in the higher clause).⁹

Table 3. Turkish nonfinite subordinate clauses by age group and syntactic function, in the narrative data (*narr*) and the answers to comprehension questions (*comp*), raw figures

	4 years (<i>N</i> = 25) <i>narr vs</i> <i>comp</i>	5 years (<i>N</i> = 23) <i>narr vs</i> <i>comp</i>	6 years (<i>N</i> = 26) <i>narr vs</i> <i>comp</i>	7 years (<i>N</i> = 28) <i>narr vs</i> <i>comp</i>	Total <i>narr vs</i> <i>comp</i>	Total <i>narr &</i> <i>comp</i>
Relative clauses	1 + 0	5 + 2	2 + 0	3 + 1	11 + 3	14
Complement clauses	39 + 34	34 + 37	38 + 49	51 + 54	162 + 174	336
Adverbial clauses	21 + 119	29 + 91	19 + 116	77 + 104	146 + 430	576
Total <i>narr vs comp</i>	61 + 153	68 + 130	59 + 165	131 + 159	319 + 607	
Total <i>narr & comp</i>	214	198	224	290		926
Average per child	8.6	8.6	8.6	10.4		9.1

Note: *N* = number of children. Figures for complement clauses do not include complement-like finite constructions with the particles *ki* or *diye*.

As Table 3 shows, the 4-to-7-year-olds produce many subordinate clauses, both in the narratives and in the answers to comprehension questions. Relative clauses are exceedingly rare (only 14 in the entire sample), but there are many hundreds of

9. In Table 3 and other tables that report figures for the narratives and the *answers to comprehension questions*, the latter are marked in *italics*.

complement clauses and adverbial clauses. Adverbial clauses are nearly three times more frequent in the question-and-answer constellations than in the narratives. Since all materials, tasks and elicitation procedures (cf. Section 2) were held constant, figures should be comparable across children and ages. Interestingly, the age group means (Table 3, bottom row) suggest that Turkish subordinate constructions do not increase with age in a clear or linear fashion, even though the 7-year-olds use more subordination than the three younger age groups. We will get back to this pattern in the Discussion. Readers interested in finding out how subordination manifests when the very same children carry out the same narrative tasks in Swedish are referred to Bohnacker (2020). Amongst other things, Bohnacker shows that relative clauses are much more frequent in the children's Swedish narratives (in fact, seven times more frequent), and that there is generally a much clearer increase of subordinate constructions with age in Swedish, but one that starts out from a lower level at age 4 and 5 than in Turkish.

4. Relativization

Two types of bound subjunctors are used in Turkish relative clauses. The non-possessive relativiser in *-(y)An* and the possessive relativiser in *-DIK*. The form *-(y)AcAK*, which specifically denotes the semantic notion prospectivity, can appear as a non-possessive or a possessive relativizer. The possessive relativizers are not used if the head noun is coreferential with the first actant or the genitive attribute of the first actant of the relative clause. The possessive suffix following the possessive subjunctors refers to the person and number of the first actant of the relative clause. The overt subject in the latter type is obligatory in genitive case.

In comparison to other languages, Turkish relative clauses are reported to be acquired late by monolingual children, after age 5. Relative clauses formed by a possessive relativizer have been found to be even rarer and later than those which are based on non-possessive relativizers. Further, relative clause structures are said to often be avoided or to exhibit formal errors before age 9 (e.g. Aksu-Koç & Slobin, 1985; Dasinger & Toupin, 1994; Küntay & Slobin, 1999; Aksu-Koç, 2010; Özge, Marinis, & Zeyrek, 2010; Sarılar, Matthews, & Küntay, 2015). The bilingual acquisition of Turkish relative clauses has been reported to proceed even more slowly and incompletely (Pfaff, 1991; Herkenrath & Karakoç, 2002). In various bilingual project data gathered in German, Dutch or French contexts, the bilingual children appear to use nonfinite Turkish structures less productively than their monolingual peers who were born in Turkey and lived there. Instead, the bilinguals tend to prefer analytic clause linkage strategies, i.e. simple juxtaposition, over synthetic nonfinite means (e.g. Schaufeli, 1991; Aarssen, 1996; Akinci et al. 2001; Herkenrath

& Karakoç, 2002, 2007; Treffers-Daller et al. 2007; Onar Valk, 2013; Onar Valk & Backus, 2013; Bayram, 2013; Schroeder, 2016).

It has been claimed that the (cross-linguistically) late acquisition of Turkish relative clauses in monolinguals (and bilinguals) might be due to low input frequency and/or low morphological transparency (e.g. Aksu-Koç & Slobin, 1985; Slobin, 1986). Compared to other languages such as Spanish, Hebrew or English, Turkish relative clauses have indeed been found to be less frequent in conversation and storytelling (Slobin, 1986; Dasinger & Toupin, 1994). Dasinger & Toupin (1994) suggest that this lower frequency could be to do with functional requirements and the placement of Turkish relative clauses in relation to the head noun. Since relative clauses are placed prenominal, it may be less likely that they are used to introduce new story characters, which in narratives is a major function of relative clauses in languages such as English or Swedish (cf. Bohnacker, 2020). Moreover, according to Dasinger & Toupin (1994), the prenominal placement of Turkish relatives may not make them as easily available for narrative progression as in languages where the relative clauses follows the head noun.

From a morphosyntactic point of view, relative clauses based on the non-possessive relativizer in $-(y)An$ are simpler and less challenging than relative clauses based on a possessive relativizer. In our data, relative clauses formed by $-(y)An$ predominate, occurring in 9 out of 14 instances; see Table 4 for the distribution.

Table 4. Relative clauses: Distribution of the relativizers in the data, raw figures

	4 years	5 years	6 years	7 years	Total
$-(y)An$	1	4	1	3	9
$-DIK$	–	1+1	1	1	2+2
$-(y)AcAK$	–	1	–	–	1
Total	1	5+2	2	3+1	11+3

The attested clauses are syntactically not expanded. They consist either of an intransitive predicate with no further arguments/adverbials (3a–c), or of a transitive predicate with an object in the nominative (4a–b).¹⁰

- (3) a. *gelen topu*
 come-YAN.PAR ball-ACC
 ‘the ball coming’ (BiTur5–25, Cat)

10. In all examples, the child’s code name is given in parentheses, e.g. BiTur5–25. The digit before the hyphen indicates the child’s age in years; thus, BiTur5–25 is 5 years old. Cat, Dog, Baby Birds (BB), Baby Goats (BG) indicate which MAIN story the child is telling. Examples found in answers to the MAIN comprehension questions are marked by ‘comprehension’.

- b. *atlayan kedi*
 jump-YAN.PAR cat
 ‘the cat jumping’ (BiTur7–26, Cat)
- c. *çimenliyen¹¹ keçiyi*
 graze-YAN.PAR goat-ACC
 ‘the goat that was grazing’ (BiTur5–08, BG)
- (4) a. *yemek bulan annesi*
 food find-YAN.PAR mother-PSS3SG
 ‘his/her mother who found food’ (BiTur4–16, BB)
- b. *yaprak yiyen keçiyi*
 leaf eat-YAN.PAR goat-ACC
 ‘the goat that is (was) eating leaf’ (BiTur5–18, BG)

All the relative clauses based on the participle *-DIK* (only 4 instances in the entire corpus) have a third person subject which is not expressed overtly but is marked with the possessive suffix on the predicate (see 5a–c). Thus, no relative clauses containing a genitive-marked overt subject are attested in our data. Two of the clauses based on *-DIK* are headless relative clauses (5b–c).

- (5) a. *en sevdiği top*
 most like-DIK.PAR-PSS3SG ball
 ‘the ball which he likes most’ (BiTur6–05, Cat)
- b. *dediği oldu*
 say-DIK.PAR-PSS3SG happen-PST
 ‘that what he said happened’ (BiTur5–13, Dog)
- c. *mutsuz, yaptığından pişman*
 unhappy do-DIK.PAR-PSS3SG-ABL sorry
 ‘he is unhappy and sorry for what he has done’
 (BiTur7–03, BB-comprehension)

The relative clause with the most complex structure in our data (produced by a 7-year-old) is Example (6), which includes the passive form of a compound predicate consisting of a noun (*balık* ‘fish’) and a function verb (*tut-* ‘to catch’). The relative clause appears as a genitive attribute (the head noun *şey* ‘thing’ being in the genitive case) within a genitive-possessive construction.

- (6) *balık tutulan şeyin adı*
 fish catch-PASS-YAN.PAR thing-GEN name-PSS3SG
 ‘the name of the thing with which a fish is caught’ (BiTur7–26, Cat)

11. The verb *çimenle-* in the intended meaning ‘to graze’ is not part of the Turkish lexicon; it is most likely a new creation by the child.

The data give a general impression that many children, instead of forming syntactically embedded relative clauses, prefer juxtaposed finite clauses, as can be illustrated in (7). Similar uses have also been described for monolingual child Turkish (e.g. Slobin, 1986; Özge et al. 2010).

- (7) *or(a)da bi(r) &ke [//] kedi görüyorum kelebeği yakalamaya*
 there one cat see-PRS-1SG butterfly-ACC catch-MA.INF-DAT
çalışıyo(r).
 try-PRS
 ‘there I see a cat; it is trying to catch the butterfly’ (BiTur5–05, Cat)

The Turkish-Swedish children thus produce few syntactically embedded relative clauses in their Turkish narratives and in their responses to comprehension questions.¹² This appears to be in line with the existing literature on Turkish relative clause acquisition in monolinguals and other bilinguals. Most relative clauses are simple participial constructions (based on non-possessive relativizers), as also described for monolingual children (Slobin, 1986; Aksu-Koç, 2010; Özge et al. 2010). Only a handful of relatives formed by a possessive relativizer are attested. Without control corpora matched for size, elicitation task and age of participants, it is difficult to say whether our Turkish-Swedish children produce relative clauses to the same degree (or not) as monolinguals who live in Turkey or as bilinguals growing up with Turkish in other heritage language settings. What we do see is that spontaneous production of relative clauses is rare, with considerable individual variation.

We have not been able to discern an increase in relative clauses across the age groups (Tables 3, 4). The 14 relative clauses are produced by 13 children of different ages and are thus not concentrated in only one or two individuals. By systematically checking our social and language background data, we tried to find commonalities for these 13 children, but this has proven difficult: The parents’ educational levels in these families vary greatly (from elementary school to university), as do the parents’ regional origins, and the children’s language constellations (ten children grow up bilingually, three trilingually, including Kurdish or Zaza). For all 13 children, the predominant language at home is Turkish, but this is no different than for most other children in our sample. Interestingly though, for 10 of the 13 children, parents report that they regularly carry out literacy activities with their child in Turkish (joint book reading, storytelling), and for 8 of them, this is done nearly every day, which is more frequent than the average. And intriguingly, the parents of 5 of these children describe them as: “started to speak very early”, “was an early developer”,

12. The scarcity of Turkish relative clauses is interesting from a cross-linguistic perspective, since the same children frequently produce relative clauses in their Swedish narratives (for details and discussion, see Bohnacker (2020)).

or “can speak better than other children”. Such comments are highly unusual in the larger sample. Should we then assume that relative clauses are spontaneously produced in narratives by children who are unusually fast developers or who have received more and/or a higher quality of Turkish input? In order to determine this, statistical models would need to be run on how background factors might be related (or not) to the production of subordinate constructions, including relative clauses.

5. Complementation

Turkish clausal complements contain nonfinite verbal predicates and fill valency slots of their higher verbs. Attempts in the existing literature to describe the acquisition of Turkish subordinate clauses do not cautiously and systematically distinguish the different types of complement clauses. As will be recalled from Section 3 (Table 3), complement clauses are generally frequent in our Turkish child data, already in the youngest age group. Complement clauses occur equally in the narratives and in the answers to comprehension questions. Table 5 gives a breakdown into subtypes, which will be discussed in the following sections.

Table 5. Nonfinite complement clauses, by subtype and age group, raw figures

	4 years	5 years	6 years	7 years	Total
Subject-coreference: subject control	38+32	30+36	35+49	48+52	151+169
Object control	–	–	–	–	–
Subject difference	1+2	4+1	3	3+2	11+5
Total narr vs <i>comp</i>	39+34	34+37	38+49	51+54	162+174
Total narr & <i>comp</i>	73	71	87	105	336
Average per child	2.9	3.1	3.3	3.8	3.3

We first analyze our findings for complement constructions whose subjects are referentially identical with the subjects of their higher clauses. Such clauses are often referred to as control constructions in the literature. We then consider the acquisition of complement clauses that have their own subjects.

5.1 Complement clauses implying subject co-reference

Subject or object control constructions are based on the bound subjunctors in *-mAK* or *-mA* (see e.g. Karakoç, 2013). The nominative (i.e. non-marked) form of the subjunctor *-mAK* is only used with the matrix predicate *iste-* ‘to want’, whereas the short form *-mA* is capable of receiving different case markers depending on the valency of the matrix verb.

The data exhibit hundreds of instances of subject control constructions (151+169 occurrences, see Tables 5, 6) in which the unexpressed, implicit subject of the complement clause is obligatorily co-referential with the subject of the higher clause. However, there is not a single instance of an object control construction in which the implicit subject of the embedded complement is co-referential with the object of the higher clause. This lack of object control constructions could be due to our experimental design (see below), but also to object control being syntactically more complex than subject control, as it involves three instead of only two arguments.

From a morphosyntactic point of view, control complement structures are less complex and challenging than complement structures that feature subject difference (next section). From a semantic point of view, control constructions typically express states-of-affairs by contrasting complement clauses having their own subjects. Employing different complementizers, the latter type of complements can convey propositions or states-of-affairs (cf. Csató, 2010; Johanson, 2013; Karakoç & Herkenrath, 2016).

The 4- to 7-year-olds make extensive use of subject control constructions. The higher predicates most frequently found are (*-mAK/-mAYI*) *iste-* ‘to want (to do)’ (58+143 occurrences), (*-mAYA*) *çalış-* ‘to try (to do)’ (68+19 occurrences), (*-mAYA*) *başla-* ‘to start (doing)’ (17+3 occurrences). The use of (*-mAYA*) *başla-* increases in the group of 7-year-olds (11+1 occurrences). Other higher predicates sporadically attested are: *devam et-* ‘to continue/to keep on’, *canı çek-* ‘to be keen on/to crave’, *başar-* ‘to succeed’, (*-mAYI*) *bil-* ‘to know (how to do)’ and (*-mAYI*) *sev-* ‘to love/to like (doing)’. Table 6 gives an overview of the distribution of the higher verbal lexemes across the age groups investigated.

Table 6. Distribution of the verbal lexemes in the higher clause of control constructions

	4 years	5 years	6 years	7 years	Total
<i>iste-</i> ‘to want’	14+27	13+27	12+42	19+47	58+143
<i>çalış-</i> ‘to try’	22+4	12+8	18+4	16+3	68+19
<i>başla-</i> ‘to start’	1+1	1+1	4	11+1	17+3
<i>başar-</i> ‘to succeed’	–	2	1	1	3+1
<i>sev-</i> ‘to like’	–	–	2	1	3
<i>devam et-</i> ‘to continue’	–	–	1	1	2
<i>canı çek-</i> ‘to be keen on’	–	2	–	–	2
<i>bil-</i> ‘to know (how)’	1	–	–	–	1
Total	38+32	30+36	35+49	48+52	151+169

The prevalence of (*-mAyA*) *çalış-*, (*-mAK/-mAyI*) *iste-* and (*-mAyA*) *başla-* has also been described for monolingual child Turkish (Aksu-Koç, 1994, 2010). Their frequent occurrence in our data may be accounted for by them being high-frequency verbs in Turkish, but also by taking into consideration the characteristics of the narrative events and the roles of the story characters/protagonists in the experimental designs. The protagonists carry out many goal-directed actions (the MAIN stories were designed that way, Gagarina et al. 2012), and the comprehension questions probe the child's understanding of the intentions behind these actions (e.g. 'Why does the fox jump forward?', 'Why does the bird bite the fox's tail?'). It is thus not surprising that the children produce many subject control constructions with 'want' and 'try'. (*-mAyA*) *çalış-* is typically used for expressing protagonists's attempts, while (*-mAK/-mAyI*) *iste-* is mainly used for goals and intentions. (*-mAyA*) *başla-* denotes initiating an action. Note that the combination (*-mAK/-mAyI*) *iste-* 'to want (to do)' is predominantly found in the answers to comprehension questions (71%) (Table 7).

Table 7. Distribution of subject control with (*-mAK/-mAyI*) *iste-* 'to want to (do)' in the two genres

	4 years	5 years	6 years	7 years	Total
Narratives	14	13	12	19	58
Answers to comprehension questions	27	27	42	47	143
Total	41	40	54	66	201

Another observation pertains to the prevailing use of the matrix verb *iste-* 'to want' with the complement verb *ye-* 'to eat' (61%), see Table 8.¹³ Again, this is likely to be due to the MAIN experimental design, as the stimuli materials depict many attempts of eating (e.g. of a fox wanting to catch and eat a baby goat, of a cat taking and eating some fish).

Table 8. Occurrence of *yemek/yemeyi iste-* 'to want to eat' in subject control constructions

	4 years	5 years	6 years	7 years	Total
<i>ye-</i> 'to eat'	6+18	6+15	11+28	8+29	31+90
Other verbs	8+9	7+12	1+14	11+18	27+53
Total	14+27	13+27	12+42	19+47	58+143

13. We are aware of the fact that *yemek* <to eat + the verbal noun in *-mAK*> can also appear as a lexicalized noun in the meaning of 'food' (i.e. *yemek iste-* can mean 'to want (to have) food'). The figures in Table 8 only refer to the verbal complements in the sense 'to want to eat'.

The acquisition of control clauses seems to proceed without great challenges on the whole. Subject control clauses are frequent in the data and are already produced by roughly two thirds of the youngest children (age 4).

There are, however, some instances in our data where subjunctor *-mA* does not take the standard Turkish case marker, which may point to issues with verb valency. We find *canı çek-* ‘to be keen on’ with *-mAyA* <MA.INF-DAT> instead of the standard form *-mAyI* <MA.INF-ACC> (Example (8a)). The higher verb *başar-* ‘to succeed’ occurs in 3 out of 4 instances (in different children from different age groups) with nonstandard *-mAyA* <MA.INF-DAT> instead of *-mAyI* <MA.INF-ACC>, see (8b–c).¹⁴

- (8) a. *canı çekmişti yemeye. /.../ canı çekti canı çekti*
 be keen-PTER-COP.PST eat-MA.INF-DAT /.../ be keen-PST be keen-PST
yemeye.
 eat-MA.INF-DAT
 ‘it was keen on eating it. /.../ it was keen on eating it’ (BiTur5–15, BG)
- b. *sonra da oğlan topunu almaya başlamış.*
 then PTC boy ball-PSS3SG-ACC take-MA.INF-DAT succeed-PTER
 ‘and then, the boy succeeded in taking his ball.’ (BiTur5–22, Cat)
- c. *iyi hissediy(o)r çünkü o kendi &eh başardı*
 good feel-PRS because s/he self succeed-PST
balonunu almaya.
 balloon-PSS3SG-ACC take-MA.INF-DAT
 ‘he feels well, because, he succeeded on his own in taking his balloon.’
 (BiTur6–08, Dog-comprehension)

Control clauses to the right of their matrix clauses are often found, as illustrated in Examples (8a) and (8c) above. But non-standard postposing occurs as well, as in (9).

- (9) *&eh bu kelebeki [:kelebeği] istiy(o)r yakalamak.*
 this butterfly-ACC want-PRS catch-MAK.INF
 ‘he wants to catch the butterfly.’ (BiTur4–05, Cat-comprehension)

14. One reviewer suggests that these examples could be target-like, as the predicate might lexically assign dative case in the regional variety of the participants’ origin. It cannot be ruled out that some of the nonstandard case markers may be due to dialectal influences, but we know too little about the actual input varieties, and there is no obvious match between the nonstandard form used by the child and the data we have on parents’ region of origin.

5.2 Complement clauses featuring subject difference

As pointed out in the previous section, nonfinite complement clauses featuring subject difference, i.e. having their own subject different from the subject of the higher clause, are *per se* morphosyntactically more comprehensive and challenging. Such clauses obligatorily need a possessive suffix which attaches to the nonfinite subjunctor and refers to the subject. If the clause has an overt subject it is often marked in genitive. A further challenge concerns the choice of an appropriate nonfinite marker. These complement clauses are based on either the verbal-nominal subjunctor in *-mA*, which semantically expresses states-of-affairs, or the participial subjunctors *-DIK* or *-(y)AcAK*, denoting propositions. Only few such instances are found. The suffix *-(y)İş*, which apart from its derivational function is also used as a complementizer in standard Turkish (Karakoç & Herkenrath, 2016), is not attested in its latter role in the data.

The data contain 16 (11+5) instances of these more complex complement clauses (Tables 5, 9).¹⁵ 10 of them are based on participial subjunctors expressing factual propositions (9 examples with *-DIK* and one example with the prospective form *-(y)AcAK*), whereas 6 clauses contain the verbal-nominal subjunctor *-mA* denoting contents related to states-of-affairs.

Table 9. Complement clauses with subject difference:
Distribution of the complementizers in the data

	4 years	5 years	6 years	7 years	Total
<i>-DIK</i>	–	4	2	2+1	8+1
<i>-(y)AcAK</i>	1	–	–	–	1
<i>-mA</i>	2	1	1	1+1	2+4
Total	1+2	4+1	3	3+2	11+5

The *-DIK* complement clauses are often governed by the predicate *gör-* ‘to see’ (6 out of 9 occurrences) while the lexeme *iste-* ‘to want’ predominantly appears as a matrix verb of *-mA*-based complement clauses (3 out of 6 cases). See Table 10 for the distribution of the matrix verbs.

In our data, complex complementation constructions do not appear to increase with age; the 16 instances are spread across the four age groups. An investigation of the social and language background data did not unearth any striking commonalities for these children, other than that they all received mostly Turkish input in

15. For monolingual Turkish children’s narratives, Aksu-Koç (1994) reports complement clauses to be scarce. Complex complementation with *-DIK* is not attested before age 5 or 9.

Table 10. Distribution of the matrix verbs embedding complement clauses

	4 years	5 years	6 years	7 years
-DIK	-	<i>gör-</i> 'to see' (4x)	<i>sevin-</i> 'to look forward' <i>merak et-</i> 'to be curious'	<i>gör-</i> 'to see' (2x) <i>düşün-</i> 'to think'
-(y)AcAK	<i>söz ver-</i> 'to promise'	-	-	-
-mA	<i>iste-</i> 'to want' (2x)	<i>iste-</i> 'to want'	<i>kork-</i> 'to be afraid'	<i>yardım et-</i> 'to help' <i>gerek-</i> 'to be necessary'

the home and had at least one parent who was born and raised in Turkey (just like the majority of children in the larger sample).

Already in the data of a 4-year-old we find some rather complex morphosyntactic complementation structures. Example (10) contains both a clause implying subject co-reference and a clause syntactically featuring subject difference. The sentence *o köpek o kediyi yakalamaya çalışmış* 'this dog tried to catch this cat' includes a subject control construction which has an accusative-marked direct object. In the subsequent utterance, the higher predicate *söz ver-* 'to promise' governs a complement clause based on the future participle -(y)AcAK, which appears in combination with the third person possessive suffix and a dative marker.

- (10) *sonra o [I] o köpek o kediyi yakalamaya çalışmış,*
 then this [I] this dog this cat-ACC catch-MA.INF-DAT try-PTER
bir daha asla almayacağıma söz vermiş o kedi.
 once more never take-NEG-YACAK.PAR-PSS3-DAT promise-PTER this cat
 'then, this dog tried to catch this cat, and the cat promised him never to take
 it again' (BiTur4-12, BB)

Example (11) also illustrates the structural complexity found in the data of some children. The higher predicate *kork-* 'to be afraid' governs a complement clause based on the subjunctive in -mA, which takes a possessive suffix for third person singular and the ablative marker. The 6-year-old child made successful decisions leading to this target-like construction: (i) the correct subjunctive (-mA) has been chosen from the alternatives, the participial subjunctive -DIK being ungrammatical; (ii) the correct case marker (i.e. ablative) has been chosen from among the available cases.

- (11) *çünkü bi(r)şey olmasından korkuyo(r)muş*
 because one thing happen-MA.INF-PSS3-ABL be afraid-PRS-COP.EVID
 'because it was afraid that something could happen' (BiTur6-09, BB)

Yet the data also show some problems, especially with the possessive suffix and choosing a correct case marker after the subjunctor to match valency. In the following examples, the higher predicates govern a correct subjunctor (i.e. *-mA*), but the cases chosen do not conform to standard Turkish. In (12a) the formation is expected to be *-mA-sIn-A* <MA.INF-PSS3SG-DAT> instead of *-mA-sIn-I* <MA.INF-PSS3SG-ACC>. In (12b) the accusative suffix is missing. Such nonstandard forms appear to be primarily produced by a handful of children who do not have two Turkey-born Turkish-L1 parents, but who are growing up trilingually with parents who are native speakers of other languages, or with two Sweden-born second-generation parents and a lot of exposure to Swedish. Their exposure to native Turkish might thus be limited. This impressionistic statement would need to be confirmed in future work.

- (12) a. *bunu yardım edince çıkmasını*
 this-ACC help make-YINCA.CONV come out-MA.INF-PSS3-ACC
tilki bakıyo(r).
 fox look-PRS
 ‘when it helps this one to come out, the fox looks’ (BiTur7–02, BG)
- b. *&ehm öyle &eh istemiyo(r) olması xx o zaman*
 so want-NEG-PRS be-MA.INF-PSS3SG that time
olmuyo(r) &ehm onun [/] onu arkadaşı.
 be-NEG-PRS he-GEN he-ACC friend-PSS3SG
 ‘he does not want that he becomes, eee, then, he does not become his friend’
 (BiTur4–05, Cat-comprehension)

As Table 11 shows, 9 out of 16 of the complex complement clauses contain an overt subject (56%), and 78% of these subjects are realised in target-like fashion (assuming the target to be standard adult Turkish). The majority of genitive-marked overt subjects are found in the data of 5-year-olds (4 out of 5 instances); see for instance (13a). Omitting genitive marking leads to non-target structures in only two examples, e.g. (13b).

Table 11. Case-marking of overt subjects in complement clauses

Overt subject		Non-overt subject	Total
Genitive	Nominative		
5	Target	7	16
	Non-target		
	2	2	

- (13) a. *sonra köpek kedinin [//] kedi [//] kedinin düştüğünü*
 then dog cat-GEN cat cat-GEN fall-DIK.PAR-PSS3SG-ACC
gördü.
 see-PST
 ‘then the dog saw that the cat had fallen.’ (BiTur5–05, BB)
- b. *bö(y)le dedi, ben [/] ben bunu çıkarmam*
 so say-PST I I this-ACC take out-MA.INF-PSS1SG
gerekiyor.
 be necessary-PRS
 ‘he said like this, it is necessary that I take this out.’
 (BiTur7–17, Cat-comprehension)

As mentioned above, Turkish complement clauses are left-branching, while, especially in the spoken language, a complement clause can also follow its higher clause (see e.g. Schroeder 2016), for instance as a result of focus scrambling. When there is exposure to a right-branching language in language contact situations (such as with Swedish), the preference for such an order might be reinforced or “overgeneralised” in Johanson’s sense (2002).¹⁶ In our child data, a complement clause follows its higher clause in 5 of 16 instances. See Examples (14a–c) and also (12a–b) above. We have not been able to detect any distributional patterns that might link the occurrence of this word order to certain background factors, such as exceptionally high exposure to Swedish or low exposure to Turkish.

- (14) a. *görmüş o köpeğin değdiğini*
 see-PTER this dog-GEN touch-DIK.PAR-PSS3-ACC
 ‘he (the boy) saw that this dog touched’ (BiTur5–19, Dog)
- b. *kuş çok sevinmişti çocuklarıyla beraber*
 bird very be happy-PTER-COP.PST child-PL-COM together
olduğuna
 be-DIK.PAR-PSS3-DAT
 ‘the bird was really happy because he was together with its kids’
 (BiTur6–18, BB)
- c. *bi(r) çocuk köpeği görmüş, ağaca çarptığını*
 one child dog-ACC see-PTER tree-DAT hit-DIK.PAR-PSS3-ACC
 ‘a child saw the dog; he saw that it bumped into a tree’ (BiTur7–08, Dog)

16. Herkenrath & Karakoç (2002) find that Turkish-heritage language children growing up in Germany use fewer nonfinite complement clauses than age-matched monolinguals in Turkey. The bilinguals also tend to postpose nonfinite complement clauses.

5.3 Complement clauses containing the particle *diye*

The data also include complement clauses based on a finite verb form in combination with the quotative particle *diye* <say-A.CONV> ‘saying’. Example (15a) illustrates the combination of the past tense marker *-DI* with the particle *diye*, while (15b–c) contain combinations of the prospective marker *-(y)AcAK* with *diye*. In heritage-language/language contact situations, such clauses are often right-branching (see e.g. Herkenrath & Karakoç, 2007).

- (15) a. *onu görürnce önceden şaşırđı, nasıl [/] nasıl*
 that-ACC see-YINCA.CONV first get surprise-PST how how
balonu oranın üstüne geldi diye
 balloon-ACC that place-GEN top-PSS3SG-DAT come-DI saying
 ‘when he saw it, he first got surprised about how his balloon came to that place.’ (BiTur7–29, Dog)
- b. *çünkü o gördü burda o onlarla yiyecek diye sonra*
 because he see-PST here he they-COM eat-PROS saying then
anne kuş geldi
 mother bird come-PST
 ‘because he saw that he will eat together with them, then, the mother bird came.’ (BiTur7–07, BB-comprehension)
- c. *sonra anne kuş da korktu bunları yiyecek diye*
 then mother bird PRT get afraid-PST these-ACC eat-PROS saying
yavru kuşları
 baby bird-PL-ACC
 ‘then, the mother bird got afraid that it will eat them, the baby birds.’ (BiTur7–14, BB)

5.4 Complement-like finite structures

There are many instances of right-branching complement-like structures based on finite verb forms. Some of these structures contain the free junctor *ki* copied from Persian.¹⁷ The preceding finite clauses include *verba dicendi* or *sentiendi* such as *duy-* ‘to hear’, *gör-* ‘to see’, *de-* ‘to say’, *bil-* ‘to know’, *zannet-* ‘to think’. The syntactically non-embedded complement that comes after the junctor has a subject in nominative and a finite predicate. Some examples from different age groups are given below.

17. For a discussion of the status of such constructions in a German-Turkish context, see Herkenrath & Karakoç (2007).

- (16) a. *onu istiyor yiyecek.*
 that-ACC want-PRS eat-CAK.PROS
 'he wants to eat it.' [lit. he wants he will eat it]
 (BiTur4–27, BG-comprehension)
- b. *annesini gördü ki kedi gene &gö geliyo(r)*
 mother-PSS3SG see-PST JUNC cat again come-PRS
 'its mother saw that the cat was coming again.' (BiTur4–05, BB)
- c. *çünkü &eh işte zannediyo(r) ki &eh sosisleri yemedi.*
 because well think-PRS JUNC sausage-PL-ACC eat-NEG-PST
 'because, well, he thinks that he did not eat the sausages.'
 (BiTur4–04, Dog-comprehension)
- d. *çünkü istiyor ki bu o arkadaşlar.*
 because want-PRS JUNC this that friend-PL
 'because he wants (lit. that) them to be(come) friends.'
 (BiTur4–28, BG-comprehension)
- e. *o küçük koyun gördü bi(r) ağacın üstünde bi(r)*
 that little sheep see-PST a tree-GEN surface-PSS3SG-LOC a
kuş vardı
 bird existent-COP.PST
 'that little sheep saw that there was a bird on the top of a tree.'
 (BiTur5–19, BG)
- f. *sonra uçtu dedi ki bunu yakalamıştı*
 then fly-PST say-PST JUNC this-ACC catch-PTER-COP.PST
 'then he flew and said that he had caught it' (BiTur6–02, Cat)
- g. *anneye diyor ben yemek istiyorum*
 mother-DAT say-PRS I food want-PRS-1SG
 'he says to the mother: I want to have food.'
 (BiTur6–23, BB-comprehension)
- h. *(..) o kelebeği gördü sonradan da o kelebek gitti*
 (..) that butterfly-ACC see-PST afterwards PTC that butterfly go-PST
sonra o zannetti ordadır.
 then he think-PST there-COP
 'he saw that butterfly, then that butterfly flew away, then he thought that
 it was still there' (BiTur7–06, Cat-comprehension)

Complement-like finite clauses in our data are found across all age groups. In the absence of a comparable Turkish monolingual narrative corpus, we are unable to say whether the bilingual Turkish-Swedish children make more extensive use of right-branching finite complement clauses under the influence of Swedish.¹⁸

18. Herkenrath, Karakoç, & Rehbein (2003) find that Turkish-German children overuse right-branching finite complement clauses compared to monolingual Turkish age peers.

Interestingly though, when comparing the social and language backgrounds of the children in our sample, the impression arises that complement-like finite clauses are often produced by children who do not have two Turkish-L1 parents born in Turkey (recall that the majority of children in our sample do have two Turkey-born, Turkish-L1 parents). These children tend to have two parents born in Sweden who grew up bilingually themselves and who speak both Swedish and Turkish to the child. The children may thus be exposed to a lot of Swedish and to second-generation Turkish, which might steer the children towards the use of complement-like finite clauses. Future work should investigate whether this impression is upheld by a more rigorous quantitative analysis.

6. Adverbialization

According to existing research on monolingual child Turkish, *-(y)Inca*, *-(y)ken* and *-(y)Ip*, which are simple converbial subjunctors, are acquired earlier than the other converbs. Another morphologically simple converb suffix, *-(y)ArAK*, and the complex morphemes *-DIGI için* and *-mAK için*, are generally reported to emerge later, after age 5 or 7 (e.g. Aksu, 1978; Aksu-Koç & Slobin, 1985; Aksu-Koç, 1994; Slobin, 1995; Küntay & Slobin, 1999). Bilingual children are reported to acquire the converbial markers later than monolinguals and to make less frequent use of the nonfinite adverbial clauses than monolingual control groups. Further, these structures, if they occur at all, tend to show morphological errors in bilinguals (e.g. Boeschoten & Verhoeven, 1986; Boeschoten, 1990; Pfaff, 1991, 1993; Aarssen, 2001; Herkenrath & Karakoç, 2002; Rehbein & Herkenrath, 2015; but see Yağmur & Nap-Kolhoff, 2010). In an earlier study investigating the present data, Bohnacker (2020) finds that there is a lot of variation between individuals and states that these forms “do not become more common from one age group to the next, nor do the children seem to employ a wider range of converbial constructions” and points out the need for a “rigorous quantitative study”. This is what we aim to provide here.

As already shown by the overall breakdown of subordination in Section 3, Turkish adverbial clauses are frequent: 146+430 utterances contain nonfinite adverbial clauses, see also Table 12.¹⁹

19. Note that complex forms containing the quotative particle *diye* ‘saying’ are not quantified. Their uses are however considered below.

Table 12. Adverbial clauses: Distribution of the converbial subjunctors (adverbializers)

		4 years	5 years	6 years	7 years	Total
<i>-mAK için</i>	in order to ^a	3+71	1+34	3+62	2+42	9+209
<i>-DIGI için</i>	since/because	1+36	45	36	1+32	2+149
<i>-(y)ken/-(y)kene</i>	while/when	–	9+1	2+3	28+2	39+6
<i>-(y)Inca</i>	when/as	4	5+2	2+3	21+5	32+10
<i>-sA or -(y)sA</i>	if	1+4	2+6	3	1+12	4+25
<i>-(y)Ip</i>	and/by X-ing	3+1	6+1	4	10+3	23+5
<i>-mAyA</i>	in order to	7+1	2	3	3+4	15+5
<i>-DIGIndA</i>	when	–	2	2	5+3	9+3
<i>-mAsI için</i>	in order for X to do ^b	5	1	5	–	11
<i>-mAdAn</i>	without X-ing	1	–	1+4	1	1+6
<i>-DIktAn sonra</i>	after	–	–	2	4	6
<i>-(y)ArAK</i>	by X-ing	1	2+1	–	–	3+1
<i>-(y)AnA kadar</i>	until	–	–	–	2 ^c	2
<i>-(y)A ... -(y)A</i>	by X-ing	1	–	–	–	1
Σ narr vs comp		21+119	29+91	19+116	77+104	146+430
Σ narr & comp		140	120	135	181	576
Average per child		5.6	5.3	5.2	6.5	

a. This is the target meaning of *-mAK için*. Non-target uses are also attested in the data (e.g. (31)).

b. This is the target meaning of *-mAsI için*. Non-target uses are also attested in the data (e.g. (32a–b), (34a–b)).

c. Both instances are found in the data of the same child.

Adverbial clauses are more than twice as frequent in the children's answers to comprehension questions as in the narratives. The complex morphemes *-mAK için* 'in order to' and *-DIGI için* 'since/because', which according to the literature on monolinguals only emerge after age 5 (e.g. Aksu-Koç, 1994; Küntay & Slobin, 1999), are already frequently used by our bilingual 4-year-olds. Their high frequency will be discussed in more detail below (for *-DIGI için* see Table 15, for *-mAK için* see Table 16). Apart from these two forms, the converb suffixes most frequently found are *-(y)ken* 'while, when' (39+6 occurrences), *-(y)Inca* 'when, since, as' (32+10 occurrences), *-(y)Ip* 'and (then)' (23+5 occurrences), and the conditionals in *-sA* or *-(y)sA*. Converbial clauses are produced most extensively by the 7-year-olds, but as Bohnacker (2020) has already noted, our data exhibit the use of converbial clauses as early as age 4.

In what follows, we will first take a look at temporal clauses before focusing on the properties of causal and purposive clauses.

6.1 Temporal clauses

As shown in Table 12, common converbial markers are temporal *-(y)ken* ‘while, when’, *-(y)Inca* ‘when, since, as’ and *-(y)Ip* ‘and (then)’, particularly so in the narratives. This may in part be due to the experimental design, as the children describe temporally ordered events in their stories. Interestingly, the converbials are the same ones that the acquisition literature describes as early emerging in monolingual child Turkish (Aksu-Koç, 1994; Topbaş et al., 2012). By contrast, studies of Turkish heritage language in Dutch, German or French contexts have reported that such converbs are rare and emerge late, not before age 5, 7, 8 or 9, if at all (Boeschoten & Verhoeven, 1986; Boeschoten, 1990; Pfaff, 1991, 1993; Aarssen, 2001; Herkenrath & Karakoç, 2002). Our data do not confirm this picture.

The converbial copular marker *-(y)ken* ‘while, when’ expressing simultaneity has a nonstandard, dialectal variant which is extended by a vowel: *-(y)kene*. This variant, which has widespread usage in Anatolian and Rumelian dialects (Karahan, 1996; Aydın, 2000; Üstüner, 2000; Başdaş, 2014), appears in 24% of the cases in our data, and is especially prominent in the group of 5-year-olds (73%), see Table 13. *-(y)kene* is produced by only 5 children. Dialectal influence cannot be ruled out, as we lack detailed information on these children’s input varieties. At least two of these children lived with a parent from a region where *-(y)kene* is widespread. Interestingly, for all 5 children, one or both parents were born in Sweden (second-generation), in contrast to the majority of families in the larger sample, and all 5 received a lot of Swedish input in the home. Exposure to native standard Turkish may thus have been limited.²⁰

Table 13. Distribution of *-(y)ken* and its dialectal variant *-(y)kene*

	4 years	5 years	6 years	7 years	Total
<i>-(y)ken</i>	–	1+1	1+2	27+2	29+5
<i>-(y)kene</i>	–	8	1+1	1	10+1
Total	–	9+1	2+3	28+2	39+6

The copular in *-(y)ken* or its dialectal variant *-(y)kene* can directly attach to nouns or adjectives, but also to participial forms of verbs, resulting in complex formations: *-(y)AcAkken* (prospective participle *-(y)AcAK* + *-(y)ken*), *-(V)rken* (aorist participle *-(V)r* + *-(y)ken*) (Table 14). The combination **-DIyken* (past marker *-DI* + *-(y)ken*) which is attested three times (2+1) in the data of two different 7-year-old children

20. In addition, two of the children were reported to previously have had delayed speech (“late talker”) or pronunciation problems. Both conditions are extremely rare in the larger sample.

is an ungrammatical formation. The intended meaning of this form is not easy to guess from the given context. In Example (17a), it seems to be used instead of the form *-(V)rken* ‘while doing’, whereas in Example (17b) it refers to a finished action ‘when the mouse has gone into the hole’.

Table 14. Distribution of *-(y)ken/- (y)kene* and its combinations with participles

	4 years	5 years	6 years	7 years	Total
<i>-(y)ken/- (y)kene</i>	–	–	–	1+1	1+1
<i>-(V)rken/- (V)rkene</i>	–	9+1	2+2	19	30+3
<i>-(y)AcAkken</i>	–	–	1	6	6+1
<i>*-Dlyken</i>	–	–	–	2+1	2+1
Total	–	9+1	2+3	28+2	39+6

- (17) a. *sonra topu aldyken, kedi işte balıklarını*
 then ball-ACC take-PST-YKEN.CONV cat well fish-PL-PSS3SG-ACC
bitirdi.
 finish-PST

A possible intended meaning: ‘then, while he was taking the ball, the cat finished his fish.’ (BiTur7–19, Cat)

- b. *üzgün çünkü fare delikten &gidi girdiyken bu da*
 sad because mouse hole-ABL enter-PST-YKEN.CONV this PTC
girebilir diye hemen koştu ağacın
 enter-POSSIB-AOR saying immediately run-PST tree-GEN
üstüne kafasını çarptı.
 top-PSS3SG-DAT head-PSS3SG-ACC hit-PST

‘he is sad because, when the mouse has gone into the hole, he thought that he also can go in and thus run, but he hit his head on the tree.’

(BiTur7–03, Dog-comprehension)

24% of the realizations of the aorist suffix in the combination *-(V)rken/- (V)rkene* exhibit morphophonological deviations from standard Turkish. These are: *vurarkene* (instead of *vururken*, 5-year-old), *görerken* (instead of *görürken*, 5- and 7-year-olds), *gelerken* (instead of *gelirken*, 7-year-old), *vererken* (instead of *verirken*, 7-year-old), *alarken* (instead of *alırken*, 7-year-old), *atlıyırken* (instead of *atlarken*, 7-year-old), *görüken* (instead of *görürken*, 7-year-old). These occurrences can be regarded as overregularizations, or they can be due to the dialectal backgrounds of the families. Note that these deviations in formation of the aorist are found elsewhere, for instance in the combination with the conditional copular *-(y)sA*, e.g. *görerse* (instead of *görürse*, 7-year-old), *yiye* (instead of *yerse*, 7-year-old) (for irregular realisations of aorist in monolingual children, see Nakipoğlu & Ketrez, 2006).

In the context of adverbial clauses, the data contain many instances of analytic, paratactic structures. That is, instead of forming subordinate nonfinite temporal clauses, some children prefer structures consisting of finite verb forms in combination with temporal-deictic adverbs such as *ondan sonra* ‘(and) then/after that’ expressing posteriority, or *o zaman* ‘that time’ signaling simultaneity. This is reminiscent of the overuse of temporal-deictic expressions reported for bilingual Turkish-Dutch and Turkish-German (Schaufeli, 1991; Aarssen, 2001; Rehbein & Karakoç, 2004; Karakoç, 2007; Herkenrath, 2016). Example (18) illustrates such a construction taken from the data of a Turkish-Swedish 6-year-old. Instead of the converbial form *-(y)InçA*, the child uses a finite form (the past tense in *-DI*) followed by a clause that begins with *o zaman da* ‘and that time’. The combination *gördü o zaman da* <see-PST that time PTC> ‘he saw and that time’ seems to have a similar meaning as *görünce* ‘when he saw’.

- (18) *o zaman onu alacaktı, sonra onu gördü o zaman*
 that time it-ACC take-PROS-COP.PST then it-ACC see-PST that time
da onu yedi.
 PTC it-ACC eat-PST
 ‘that time he was going to take it, then, he saw it and that time he ate it.’
 (BiTur6–03, Dog-comprehension)

It is tempting to attribute the occurrence of paratactic finite temporal clauses to language contact with Swedish, and in particular with its spoken, informal variety, where clause-initial temporal-deictic adverbs occur extremely frequently (Ekberg, 1997; Bohnacker, 2010; Bohnacker & Lindgren, 2014). However, we have not yet quantified the finite constructions with temporal-deictic adverbs in our Turkish data, and without a carefully matched control corpus, it is impossible to say whether they are more frequently used by Turkish-Swedish children than monolingual Turkish age peers or bilinguals growing up in a different setting.

6.2 Causal and purposive clauses

As mentioned earlier, the literature characterizes the complex subjunctors *-DIGI için* ‘since/because’ and *-MAK için* ‘in order to’ as late emerging in monolingual children. In our bilingual data, however, both are frequently attested already in the youngest participants, particularly in question-answer constellations (Tables 12, 15, 16). Since causal and purposive clauses are so frequent but are also the area of subordination that exhibits many nonstandard forms and functions, we will treat them together here, starting with causal clauses.

6.2.1 Causal clauses

The complex subjunctor *-DIGI için* ‘since, because’ (< the participle in *-DIK* + a possessive suffix agreeing with the subject of the subordinate clause + the postposition *için* ‘for’) forms causal clauses. The narrative part of our data contains only 2 occurrences of this form, while 149 instances (99%) are found in the answers to comprehension questions (Table 15). It is interesting to see that this complex verb is already frequently used at age 4, unlike what is reported elsewhere in the literature (Boeschoten & Verhoeven, 1986; Aarssen, 2001; Herkenrath & Karakoç, 2002; Rehbein & Karakoç, 2004). See Examples (19a–c).

Table 15. Distribution of *-DIGI için* ‘since/because’ in the two genres

	4 years	5 years	6 years	7 years	Total
Narrative data	1	–	–	1	2
Comprehension data	36	45	36	32	149
Total	37	45	36	33	151

- (19) a. *sonra da yavru kuş korkuyor köpek ağaca*
 then PTC baby bird get afraid-PRS dog tree-DAT
çıktığı için
 go up-DIK.PAR-PSS3SG for
 ‘then, the baby bird becomes afraid because the dog goes up the tree.’
 (BiTur4–03, BB)
- b. *çünkü balonunu aldığı için.*
 because balloon-PSS3SG-ACC take-DIK.PAR-PSS3SG for
 ‘because he took his balloon.’ (BiTur4–07, Dog-comprehension)
- c. *çünkü &e &şe &tı xxx &e orda o kısa sosisi (.)*
 because there that short sausage-ACC
yediği akıllı olduğu için.
 eat-DIK.PAR-PSS3SG smart be-DIK.PAR-PSS3SG for
 ‘because he ate the short sausage there and he was smart.’
 (BiTur4–08, Dog-comprehension)

Clause-final marking *-DIGI için* is sometimes combined with the clause-initial junctor *çünkü* ‘because’, thus marking causality twice, e.g. (19b–c). This nonstandard use will be discussed below.

The complex causal form *-(y)AcAGI için* ‘since, because’ (< the participle in *-(y)AcAK* + a possessive suffix agreeing with the subject of the subordinate clause + the postposition *için* ‘for’) occurs seldom, see (20).

- (20) Question: *Sence tilki neden kötü/üzgün vs. hissediyor?*
 ‘Why do you think that the fox is feeling bad/ scared/ hungry/ disappointed etc.?’
- Child’s answer: *or(a)dan karga onu diřliyor, ondan, bi(r) de yemek*
 there crow it-ACC bite-PRS that-ABL besides food
iyemeyeceđi için
 eat-NEG.POSSIB-PROS-PSS3SG for
 ‘the crow bites him there, besides, because it cannot eat food’
 (BiTur6–20, BG-comprehension)

Many children in our sample produce nonfinite causal clauses, and we have not been able to discern any distributional patterns that would relate their use (or non-use) with age or certain background factors, such as language exposure, home literacy activities, etc.

The data also contain examples of causal clauses that are based on finite forms combined with the quotative particle *diye* <say-A.CONV> ‘saying’. (These are not included in the counts above.) Examples (21a–e) illustrate *-DI diye* (< past tense in *-DI + diye*), while clauses in Examples (22a–b) are based on *-(y)AcAK diye* (< prospective in *-(y)AcAK + diye*). The use of *-(Ø)Iyor diye* (present tense in *-(Ø)Iyor + diye*) and *-mİř diye* (postterminal in *-mİř + diye*) are seldom found (Examples (23) and (24) respectively). As can be seen, some of these clauses additionally contain the free junctor *çünkü* ‘because’.

- (21) a. *ondan sonra adam oturdu, topu [/] topu*
 afterwards man sit down-PST ball-PSS3SG ball-PSS3SG
suya düřtü diye
 water-DAT fall-PST saying
 ‘afterwards, the man sat down because his ball fell into the water.’
 (BiTur5–06, Cat)
- b. *onlarla ağlayabilir anne gitti diye*
 they-COM cry-POSSIB-AOR mother go-PST saying
 ‘he can cry together with them because the mum has gone.’
 (BiTur7–07, BB-comprehension)
- c. Question: *Çocuk neden oltasını suya doğru atıyor?*
 ‘Why does the boy hold the fishing rod in the water?’
- Child’s answer: *çünkü řu şey yapmış hayalet oldu*
 because that things do-PTER ghost become-PST
diye, řöyle
 saying in that way
 ‘because he became a ghost that one did things, such as.’
 (BiTur4–22, Cat-comprehension)

- d. *çünkü böyle* [//] *böylece şey diye çünkü*
 because in this way this way things saying because
gelmedi diye çocuk
 come-NEG-PST saying child
 ‘because of things, the child has not come.’
 (BiTur4–29, Cat-comprehension)
- e. Question: *Sence çocuk neden iyi/güzel/mutlu/memnun vs. hissediyor?*
 ‘Why do you think that the boy is feeling good/ happy etc.?’
 Child’s answer: *çünkü balonunu alabildi diye*
 because balloon-PSS3SG-ACC take-POSSIB-PST saying
 ‘because he could take his balloon.’
 (BiTur5–07, Dog-comprehension)
- (22) a. Question: *Sence yavru keçi kendini neden kötü/aç vs. hissediyor?*
 ‘Why do you think that the baby goat is feeling bad/ scared/ in danger etc.?’
 Child’s answer: *çünkü bö(y)le bat(a)cak diye.*
 because in this way stick-PROS saying
 ‘because it will stick in this way.’
 (BiTur6–17, BG-comprehension)
- b. Question: *Sence yavru kuşlar neden kötü hissediyor/aç vs. olabiliirler?*
 ‘Why do you think that the baby birds are feeling bad/ hungry etc.?’
 Child’s answer: *anne gidecek diye yemek getirmeye.*
 mother GO-PROS saying food bring-MA.INF-DAT
 ‘because the mother will go to bring the food’
 (BiTur7–03, BB-comprehension)
- (23) Question: *tamam peki niye bağırıyor bu oğlan köpeğe?*
 ‘Okay. Why is the boy shouting at the dog?’
 Child’s answer: *çünkü yemeği &yi &yi yiyo(r) diye.*
 because food-ACC eat-PRS saying
 ‘because it is eating the food’
 (BiTur4–10, Dog-comprehension)
- (24) Question: *Sence çocuk neden iyi/güzel/mutlu/memnun vs. hissediyor?*
 ‘Why do you think that the boy is feeling good/ happy etc.?’
 Child’s answer: *çünkü balonu iyi almış diye.*
 because balloon-ACC good take-PTER saying
 ‘because he has got the balloon well’
 (BiTur4–10, Dog-comprehension)

In several examples, a causal relation is vaguely expressed, without a formal marking and exclusively by juxtaposed structures; see for instance (25). Further, there are a quite a number of instances in which the conjunctor *çünkü* ‘because’ is followed by a finite clause (26a–d).

- (25) *sonra şu abi ağlamış topu gitmişti denize*
 then that big boy cry-PTER ball-PSS3G go-PTER-COP.PST sea-DAT
 ‘then that big boy cried (because) his ball went into the sea’ (BiTur4–12, Cat)
- (26) a. *sonra köpek de onu alma çalışıyor çünkü kuşlara*
 then dog PTC it-ACC take-MA.INF try-PRS because bird-PL-DAT
yetiştii (...)
 reach-PST
 ‘then, the dog tries to take it, because it reached the birds’
 (BiTur4–07, BB)
- b. *&ehm üzgün oldu çünkü &eh hiç bi(r) balık gelmedi.*
 sad become-PST because any fish come-NEG-PST
 ‘he got sad, because no fish came’ (BiTur5–05, Cat)
- c. *sonra da çocuk balonunu alabilmiş (..) çünkü o*
 then PTC child balloon-PSS3SG-ACC take-POSSIB-PTER because he
dala çıkmış.
 branch-DAT climb-PTER
 ‘then the child could get his balloon because he climbed that branch’
 (BiTur5–07, Dog)
- d. *ama şimdi oğlan var kızacak çünkü o balıkları*
 but now boy existent get angry-PROS because that fish-PL-ACC
oltaylan tuttu.
 fishing-rod-INS catch-PST
 ‘but, now the boy gets angry because he fished the fish with a fishing-rod’
 (BiTur5–16, Cat-comprehension)

6.2.2 Purposive clauses

6.2.2.1 Purposive clauses denoting subject co-reference

Purposive clauses denoting subject co-reference (in the sense of ‘in order to do’) are typically formed with the morpheme *-mAyA*, a combination of the short infinitive *-mA* and the dative suffix *-(y)A*, or with the complex morpheme *-MAK için* consisting of the infinitive *-MAK* and the postposition *için* ‘for’. The data contain several hundreds of examples of these complex forms (see Table 12 above), and they are already frequent at age 4, which is earlier than accounts in the literature on monolingual and bilingual children (e.g. Boeschoten & Verhoeven, 1986; Pfaff,

1993; Aksu-Koç, 2010). *-mAK için* is mainly found in the answers to comprehension questions (96%), see Table 16, similarly to causal *DIGI için* (Table 15). We have not found any tendencies that would link age or particular aspects of social and language background to children's use or non-use of these complex morphemes in our data.

Table 16. Distribution of *-mAK için* 'in order to' in the two genres

	4 years	5 years	6 years	7 years	Total
Narratives	3	1	3	2	9
Answers to comprehension questions	71	34	62	42	209
Total	74	35	65	44	218

Examples (27a–d) illustrate the use of *-mAyA*, while (28a–e) contain *-mAk için*.

- (27) a. *sonra bir adam gelmiş balık tutmaya*
 then one man come-PTER fish catch-MA.INF-DAT
 'then a man came to fish' (BiTur4–06, Cat)
- b. *sonra şöyle kelebeği yakalamaya geliyor*
 then so butterfly-ACC catch-MA.INF-DAT come-PRS
 'then he comes like this to catch the butterfly' (BiTur4–12, Cat)
- c. *keçi suya düşmüş, sonra anne keçi, keçiği almaya gitti*
 goat water-DAT fall-PTER then mother goat goat-ACC
 take.MA.INF-DAT go-PST
 'the goat fell into the water, then, the mother goat went to get the goat' (BiTur5–25, BG)
- d. *anne kuş gitti &eh yemek getirmeye yani solucan*
 mother bird go-PST food bring-MA.INF-DAT I mean worm
 'the mother bird went to bring food, I mean worms' (BiTur7–21, BB)
- (28) a. *o bir gün xx onu bulmak için sonra xxx eve gidip xx.*
 he one day it-ACC find-MAK.INF for then house-DAT
 go-CV
 'he went one day in order to find it he went home' (BiTur4–23, Dog)
- b. *çünkü yemek için, onu koklamak için yemek istiyor çünkü kediler balıkları sever.*
 want-PRS because cat-PL fish-PL-ACC like-AOR
 'because in order to eat, in order to smell it he wants to eat it, because cats like the fish' (BiTur4–12, Cat-comprehension)

- c. *çünkü* [/] *çünkü kelebeği yakalamak için*.
because because butterfly-ACC catch-MAK.INF for
'because in order to catch the butterfly' (BiTur5–22, Cat-comprehension)
- d. *çünkü &eh kelebeği yemek için atlamış*.
because butterfly-ACC eat-MA.INF for jump-PTER
'because he jumped in order to eat the butterfly'
(BiTur6–16, Cat-comprehension)
- e. *kuş anne yavrularını bırakmış, sonra uçmuş çünkü yemek almak için onlara*
bird mother baby-PL-PSS3SG-ACC leave-PTER then fly-PTER because
food take-MAK.INF for they-DAT
'the mother bird left her babies and then flew away, because, in order to
get food for them' (BiTur7–19, BB)

In some cases, children combine clause-final purposive *-mA için* with the clause-initial free junctor *çünkü* 'because' (28c–d), as was also found for some causal clauses (previous section).

6.2.2.2 Purposive clauses denoting subject difference

Turkish purposive clauses denoting subject difference (in the sense of 'in order for X (not) to do', 'in order that') are based on *-(mA)sIn diye* (< (negation suffix *-mA*) + volunative suffix *-sIn* + quotative marker *diye* 'saying') or *-(mA)mAsI için* (< (negation suffix *-mA*) + verbal nominal subjunctive in *-mA* + possessive suffix + postposition *için* 'for'). The volunative suffix *-sIn* within *-(mA)sIn diye*, as well as the possessive suffix in *-(mA)mAsI için* agree in person and number with the subject of the given subordinate clause. The overt subjects of the purposive clauses that are based on *-(mA)sIn diye* are in nominative, whereas the clauses based on the latter form necessarily have genitive-marked subjects.

Whilst purposive clauses denoting subject difference are much less frequent in our data than those denoting subject co-reference (previous section), they occur across the age groups (Table 12 above).²¹ There are several occurrences of the affirmative or negated uses of *-(mA)sIn diye* (Examples (29a–c)), while the form *-(mA)mAsI için* is only attested in question-answer constellations; see Examples (30a–c). Sometimes, as in Examples (30a–c), the genitive case is missing on the given overt subjects.

21. The imbalance of hundreds of purposive clauses with subject co-reference vs a dozen purposive clauses with subject difference is reminiscent of the distributional pattern for complementation: Complement clauses denoting co-reference were also vastly more frequent than those denoting subject difference. In both domains then, the morphologically more complex constructions are infrequent in our data.

- (29) a. Question: *Köpek neden kedinin kuyruğunu yakalıyor?*
 ‘Why does the dog grab the cat’s tail?’
 Child’s answer: *işte insin diye.*
 well come down-VOL3SG saying
 ‘well in order for it to come down’
 (BiTur4–14, BB-comprehension)
- b. Question: *Köpek neden kedinin kuyruğunu yakalıyor?*
 ‘Why does the dog grab the cat’s tail?’
 Child’s answer: *işte onları yimesin diye, kuşları.*
 well they-ACC eat-NEG-VOL3SG saying bird-PL-ACC
 ‘well for it does not eat them, the birds’
 (BiTur4–21, BB-comprehension)
- c. Question: *Sence anne keçi en çok kimi sevmiştir: tilkiyi mi kuşu mu?*
 ‘Who does the mother goat like best, the fox or the bird?’
 Child’s answer: *kuşu.* ‘the bird’
 Question: *neden?* ‘why?’
 Child’s answer: *çünkü kuş ona yardım etti & kaç, & eh şey tilki*
 because bird he-DAT help-PST fox
gitsin diye.
 go-VOL3SG saying
 ‘because the bird helped him in order for the fox to go’
 (BiTur6–08, BG-comprehension)
- (30) a. Question: *Köpek neden kedinin kuyruğunu yakalıyor?*
 ‘Why does the dog grab the cat’s tail?’
 Child’s answer: *çünkü onu [/] onu gitmesi için*
 because it-ACC it-ACC go-MA.INF-PSS3SG for
 ‘for it will go’ (BiTur4–29, BB-comprehension)
- b. Question: *Köpek neden kedinin kuyruğunu yakalıyor?*
 ‘Why does the dog grab the cat’s tail?’
 Child’s answer: *ondan & est & almayı almaması için*
 it-ABL take take-NEG-MA.INF-PSS3SG for
 ‘for it will not take it from him’
 (BiTur5–12, BB-comprehension)
- c. Question: *Sence anne keçi en çok kimi sevmiştir: tilkiyi mi kuşu mu?*
 ‘Who does the mother goat like best, the fox or the bird?’
 Child’s answer: *kuşu* ‘the bird’
 Question: *niye?* ‘why?’
 Child’s answer: *çünkü kuş onlara bir iyilik yaptı, tilki*
 because bird they-DAT one goodness do-PST fox
gitmesi için
 go-MA.INF-PSS3SG for
 ‘because the bird did them a favor in order for the fox to go’
 (BiTur6–14, BG-comprehension)

The relatively infrequent purposive clauses denoting subject difference in our data do not become more frequent with age but are spread across 8 children. When trying to establish background commonalities, we found that family socioeconomic status varied widely. However, for all 8 children both parents were Turkish L1 speakers born in Turkey, the children received mostly Turkish input in the home, and 7 out of 8 were exposed to regular literacy activities in Turkish, which is more frequent than average in the larger sample.

6.2.3 *Mixing causal and purposive structures*

6.2.3.1 *Non-target usages of grammatical markers*

The data is widely characterized by non-target-like formations of causal and purposive clauses. By this we mean that the children's usage does not correspond to standard adult Turkish. The complex form *-mAK için*, which adults use for purposive clauses implying subject co-reference, is sometimes used by children in intended causal contexts (Example (31)). Similarly, the form *-mAsI için*, which is standardly used for purposive clauses denoting subject difference, occurs in the child data also with a causal function (Examples (32a–b)).

- (31) Question: *Sence köpek kendini neden iyi/güzel/mutlu vs. hissederdi?*
 'Why do you think that the dog feels good/ fine/ happy/ satisfied etc.?'
 Child's answer: *çünkü o da acıkmış kediye kovalamak*
 because it PTC get hungry-PTER cat-ACC chase-MAK.INF
için
 for
 intended: 'it also got hungry because it chased the cat'
 (BiTur6–05, BB-comprehension)
- (32) a. Question: *Yavru kuşlar nasıl hissediyor?* 'How do the baby birds feel?'
 Child's answer: *&ehm annesi gitmesi için*
 mother-PSS3SG go-MA.INF-PSS3SG for
&ehm hissediy(o)r.
 feel-PRS
 intended: 'they feel, eeee, because their mother went'
 (BiTur4–10, BB-comprehension)
- b. Question: *Sence çocuk neden kötü/kızgın/sinirli vs. hissederdi?*
 'Why do you think that the boy feels bad/ angry/ mad etc.?'
 Child's answer: *çünkü balıkları yemesi için kedi*
 because fish-PL-ACC eat-MA.INF-PSS3SG for cat
 intended: 'because the cat ate the fish'
 (BiTur6–01, Cat-comprehension)

To our knowledge, such causal-purposive mixes have not been much described for child Turkish, neither for monolinguals nor for bilinguals, possibly because existing studies have not included a large sample of causal and purposive clauses. From a cross-linguistic perspective it may be less surprising that such forms occur in question-answer constellations, because why-questions can often be answered by looking forwards (purpose, ‘in order to...’) or looking backwards (cause, ‘because’) (cf. Trabasso et al., 1988). Causal *-DIGI için* and purposive *mAK için* and *-mAsI için* also overlap morphologically in the sense that they both make use of the postposition *için* ‘for’. Thus, some children appear to be battling with the precise form and function of the subordinating suffixes. This may sometimes give the impression of cause and purpose being confused with each other.

The complex forms *-(mA)sIn diye* and *-(mA)mAsI için*, which typically denote subject difference in purposive clauses, are also attested in purposive clauses denoting subject co-reference in the child data. Example (33) illustrates such non-target use. Examples (34a–b) contain *-mAsI için*, where the reference of the possessive suffix in the form remains unclear.

- (33) Question: *Çocuk neden yukarıya doğru uzanıyor?*
 ‘Why does the boy jump up?’
 Child’s answer: *(.) çünkü balonunu alsın diye.*
 because balloon-PSS3SG-ACC take-VOL3SG saying
 intended: ‘because, in order to take his balloon’
 (BiTur5–07, Dog-comprehension)
- (34) a. Question: *Tilki neden atlıyor?*
 ‘Why does the fox jump forward?’
 Child’s answer: *çünkü &ee xx keçiyi yakalaması için*
 because goat-ACC catch-MA.INF-PSS3SG for
 intended: ‘because, in order to catch the goat’
 (BiTur4–08, BG-comprehension)
- b. Question: *Çocuk neden yukarıya doğru uzanıyor?*
 ‘Why does the boy jump up?’
 Child’s answer: *çünkü balonunu alması için.*
 because balloon-PSS3SG-ACC take-MA.INF-PSS3SG for
 intended: ‘because, in order to take his balloon’
 (BiTur6–09, Dog-comprehension)

Furthermore, some children do not seem to have mastered the use of complex forms containing the quotative particle *diye* ‘saying’. In Example (35), the possessive marker after the prospective *-(y)AcAk* is missing, which results in a non-targetlike purposive construction. Targetlike forms would be either *-mAK için* or *-(y)AcAğIm diye* (assuming the target to be standard adult Turkish).

- (35) a. *kedı de geliyo(r) &ehm onları &ehm korkutacak diye*
 cat PTC come-PRS they-ACC scare-PROS saying
 intended: 'the cat also comes, eee, in order to scare them' (BiTur4–10, BB)

6.2.3.2 Ungrammatical markers

The data also contain 14 occurrences of forms that are ungrammatical in standard Turkish: **-mAyA için* <MA.INF-DAT İÇİN.POSTP> and **-mAyI için* <MA.INF-ACC İÇİN.POSTP> (Table 17). Only 6 children produce these forms (see below).

Table 17. Occurrences of the ungrammatical morphemes **-mAyA için* and **-mAyI için*

	4 years	5 years	6 years	7 years	Total
<i>*-mAyA için</i>	1+6 ^a	–	–	1+3 ^b	2+9
<i>*-mAyI için</i>	2 ^c	–	1	–	1+2
Total	1+8	–	1	1+3	3+11

- a. These 6 occurrences are found in the data of one child.
 b. 2 out of 4 instances are produced by the same child.
 c. Both occurrences are found in the data of one child.

The combination **-mAyA için* <MA.INF-DAT İÇİN.POSTP>, which seems to be a creative mixture of the forms *-mAyA* and *-mAK için*, is found in 11 examples from 5 different children. In these instances, **-mAyA için* is intended to denote a purposive clause marking subject co-reference (see 36a–d).

- (36) a. *&hıhu &au çünkü fareyi yakalamaya için.*
 hee because mouse-ACC catch-MA.INF-DAT for
 intended: 'eee...in order to catch the mouse' (BiTur4–07, Dog)
- b. *annesi de &eh yardım &eh yardım ediyor öbür fâra[@s]
 mother-PSS3 eee help eee help make-PRS other sheep-DAT
 çıkmaya için
 come out-MA.INF-DAT for
 intended: 'his mother helps the other sheep to come out' (BiTur7–27, BG)*
- c. *kardeşini kurtarmaya için.*
 sibling-PSS3SG-ACC escape-MA.INF-DAT for
 intended: 'in order to escape his sibling'
 (BiTur7–09, BG-comprehension)
- d. *çünkü topunu almaya için, top uzaklara
 because ball-PSS3SG-ACC take-MA.INF-DAT for ball far-PL-DAT
 gid(e)cekti, ondan oltayla alıyo(r) topunu.
 go-PROS-COP.PST that is why fishing rod-INS take-PRS ball-PSS3SG-ACC
 intended: 'in order to take his ball, the ball was going far, that is why he
 takes his ball with a fishing rod' (BiTur7–19, Cat-comprehension)*

The form **-mAyI için* is produced three times by 2 different children. In one of these examples, it occurs in a purposive clause denoting subject co-reference (37a), whereas in another example it is used in a causal-like construction denoting the reason (37b).

- (37) a. *sonra solucan getiriyor yemeyi için*
 then worm bring-PRS eat-MA.INF-ACC for
 intended: ‘then it (the mother bird) brings a worm to eat’
 (BiTur6–07, BB-comprehension)
- b. Question: *Sence kedi neden kötü hissediyor?*
 ‘Why do you think that the cat feels bad?’
 Child’s answer: *&ehm köpek onu ısırması için.*
 dog he-ACC bite-MA.INF-ACC for
 intended: ‘because the dog had bitten him.’
 (BiTur4–16, BB-comprehension)

One example from the data of a 4-year-old contains a non-target formation **-(y)AcAK için* (< the prospective marker *-(y)AcAK* + the postposition *çin* ‘for’) which is intended to form a purposive clause with subject co-reference, see (38).

- (38) Question: *Köpek neden sosisleri kapıyor?*
 ‘Why does the dog grab the sausages?’
 Child’s answer: *çünkü o &eh xx o onu yiyecek için.*
 because it it it-ACC eat-PROS for
 intended: ‘because, in order to eat it’
 (BiTur4–23, Dog-comprehension)

Another example comes from the data of a 6-year-old who uses *-mİş için* with the intention of forming a causal clause (39). Here, once again, the child seems to be uncertain about the uses of *diye* and *çin*. The form *-DIGI için* would function well in the intended meaning.

- (39) Question: *Kedi neden ağaca tırmanıyor?*
 ‘Why is the cat climbing the tree?’
 Child’s answer: *&eh kuşlar acıkmış için kuşları yiyecek.*
 bird-PL feel hungry-PTER for bird-PL-ACC eat-PROS
 intended: ‘the birds, because he feels hungry he will eat the birds’
 (BiTur6–21, BB-comprehension)

Summing up, in addition to many target-like formations of causal and purposive clauses (6.2.1, 6.2.2), our data show cause and purpose mixes, purposive marking with subject co-reference being mixed up with subject difference, as well as some novel morphological forms. This suggests that some children do not yet fully master

the exact forms and functions of the subordinating suffixes in the causal and purposive domain. It has proven difficult for us to find distributional patterns that might be linked to background factors. For those few (i.e. 6) children who used novel forms that are ungrammatical in standard Turkish, we did find some commonalities though: Most forms were produced by two 4-year-olds, and none of the 6 children was exposed to any, or any regular, home literacy activities in Turkish (joint book reading, telling stories), unlike most children in the larger sample. For one (trilingual) child, exposure to Turkish was very limited in general. Three of the 6 children were characterized by their parents to have had “difficulties with words”, being a “late taker”, having had many ear infections, or “saying many strange things”. These are highly unusual comments in the sample at large.

The forms and functions of the children’s causal and purposive subordinate constructions are schematically recapitulated in the Appendix.

6.2.4 *The junctor çünkü in combination with nonfinite morphemes*

The comprehension part of the data includes a large number of instances of the use of the free causal conjunctive *çünkü* ‘because, for’, see Table 18.

Table 18. Distribution of the causal junctor *çünkü* in the two genres

	4 years	5 years	6 years	7 years	Total
Narratives	2	4	1	5	12
Answers to comprehension questions	256	251	236	287	1030
Total	258	255	237	292	1042

As already shown by the examples in the previous sections, *çünkü* is often combined with different causal and purposive subjunctors. In most of these instances, *çünkü* appears as an initial element. See, for instance Examples (8c), (19b–c), (28b–d), (30a), (31), (32b), (34a–b), (36a, d). The use of *çünkü*, especially in target or intended purposive clauses, seems to be an interesting phenomenon in our data and is discussed in greater detail in Bohnacker (2020). Bohnacker suggested that the children’s novel way of combining clause-initial *çünkü* (which in standard Turkish is not a marker of subordination but coordination) with clause-final nonfinite causal or purposive subordination markers (e.g. *-DIGI için* or *-MAK için*) may be due to language contact with Swedish. Recall that Swedish marks subordination with a clause-initial complementizer (e.g. *för att* ‘because/for’, Example (1b)). The doubling constructions retain nonfinite Turkish subordination marking, but add a (Swedish-style) clause-initial signal. Whilst not every child in our data produces such doubling constructions, many do, and in all four age groups. We have not been able to discern a tendency that might link the use of the doubling construction to

age or certain background factors. It should be remembered though that all children in our sample are exposed to Swedish to considerable degrees, as they attend Swedish childcare institutions for a large part of the day, and often do so from an early age. To our knowledge, the use of *çünkü* together with nonfinite subordination marking has not been mentioned much for Turkish heritage-language children growing up in other settings.²² It is possible that the construction is particularly prominent in Swedish-Turkish children. But it is also possible that a phenomenon that otherwise may have gone unnoticed has been captured by our elicitation method and the sheer amount of data, where 102 children not only told fictional stories but also answered why-questions that elicit causal and purposive clauses in response.

7. Summary, discussion and conclusions

From the data of 102 4-to-7-year-old children acquiring Turkish as a heritage language in Sweden, a variegated picture of subordination emerges. They produce a large array of nonfinite subordinate construction types. Some of these nearly always conform to adult standard Turkish, whilst other constructions are morphologically more challenging for the children. We were surprised not to find much development with age, instead there was a lot of individual variation in the data: Irrespective of age, some children produced subordinate constructions to a much higher degree than others (see below). Subordinate constructions of older children were not more target-like in form than those produced by younger children. Nor could we discern a linear increase in frequency, or any increase from age 4 to 6, even though frequencies were slightly higher at age 7. It would be premature, however, to interpret this lack of a clear age-related increase in subordinate constructions as a sign of stagnation. The developmental picture might simply be blurred by the issue of sampling, as we have analyzed cross-sectional and not longitudinal data.

The entire corpus (of 14,030 + 7,900 words) contained only 14 relative clauses, most of them clauses with the relativizer *-(y)An*. Clauses with the possessive relativizer *-DIK* were extremely rare. Relative clauses were simple and not syntactically expanded. This finding is in line with earlier observations in the literature concerning the rarity and late emergence of relative clauses in monolingual and bilingual child Turkish.

22. According to the literature, the causal marker *çünkü* is late to emerge in monolingual child Turkish (Aksu-Koç & Slobin, 1985). Boeschoten (1990, p. 134, fn. 9) mentions two 7-year-old monolinguals in Turkey who occasionally combine *çünkü* and *-mAsI için*, but apparently did not observe the doubling construction in Turkish-Dutch bilingual children in the Netherlands.

As for complement clauses, the existing literature does not systematically describe the acquisition of different types of complementation. Here, the Turkish-Swedish children produced more than 300 nonfinite subject control constructions (where the subject is co-referential with that of the matrix clause), virtually all of them morphologically target-like. The corpus also contained 16 more complex nonfinite complement clauses whose subject was not co-referential with the matrix clause subject. Morphologically, these complement clauses mostly conformed to adult standard Turkish concerning the choice of subjunctor, oblique subject case marking and possessive suffix, though in a couple of cases children did not correctly mark the subject with genitive case. Complement clauses with object control were not attested. All the same, the sheer amount and variety of complement clauses produced by the Swedish-Turkish children is impressive. We also noted the occurrence of right-branching, finite complement-like constructions.

By far the most frequent types of subordination were nonfinite adverbial clauses (more than 500 instances), including both simple and more complex constructions. In the narrative data, temporal converbs (e.g. *-(y)IncA* ‘when’, *-(y)ken* ‘while’) predominated, which is not surprising since narratives easily lend themselves to temporal structuring for both simultaneity and sequentiality. The temporal adverbial clauses also included some non-target formations of *-(y)ken*, and the nonstandard, dialectal form *-(y)kene*, which is most likely modelled on dialectal input that some of the children receive. Temporal converbs were not very common at age 4, 5 and 6, but increased in frequency at age 7. Other types of adverbial clauses (e.g. causal, purposive, conditional) were generally rare in the narratives, but in the answers to the why-comprehension questions, the children produced more than 400 causal and purposive adverbial clauses. The complex causal subjunctor *-DIGI için* ‘since, because’ and the complex purposive subjunctor *-mAK için* ‘in order to’ were particularly common. Some children seemed to be confused however about the precise functions of these subjunctors (and other related subjunctors, e.g. *-(mA)mAsI için* ‘in order for X (not) to do’) and used causal forms instead of purpose ones and vice versa. Also, the morphological form of nonfinite causal and purposive adverbial clauses was not always target-like; this included formations of **-mAyA için* and **mAyI için* denoting subject co-reference that are ungrammatical in standard Turkish. Some children also seemed to be uncertain about the use of *için* ‘for’ and quotative *diye* ‘saying’. Finally, the children frequently produced a novel combination of the clause-initial free junctor *çünkü* ‘because/for’ and a nonfinite verb and postposition *için* to form causal or purposive clauses, possibly influenced by language contact with Swedish.

In general, the findings suggest that the children are well able to use a variety of both simple and complex nonfinite subordinate constructions. On the whole, the data do not seem to confirm earlier studies according to which bilingual

Turkish-speaking children produce nonfinite subordinate constructions seldom and late and do so more rarely and later than monolinguals (e.g. Boeschoten & Verhoeven, 1986; Pfaff, 1993; Aarssen, 2001; Herkenrath & Karakoç, 2002). Nonfinite converbs, for instance, were used already by some of our 4- and 5-year-olds, which is several years earlier than previously documented in the literature. Whilst in our Turkish-Swedish data there certainly were some morphosyntactic problems (especially in causal and purposive adverbial clauses), the large majority of the children's constructions conformed to adult standard Turkish.

What, then, might be the reasons behind the relatively successful and early acquisition of nonfinite subordination by our Turkish-Swedish bilingual children, compared to earlier studies of heritage Turkish children? Several possibilities spring to mind. For instance, methodology might play a role. Firstly, our experimental design with two genres (fictional storytelling with MAIN and comprehension questions) may have been more amenable to eliciting subordinate constructions than other designs (such as only narratives or spontaneous conversation). For instance, adverbial clauses encoding cause and purpose were exceedingly rare in the narrative part of our data, but very frequent in the answers to comprehension questions (99% of all causal clauses and 96% of all purposive clauses were found there). Had we only considered the narrative data, we might have drawn the premature (and wrong) conclusion that causal and purposive subordination is late, lacking, or problematic in our bilingual 4-to-7-year-olds.

Secondly, the setting that the Turkish-Swedish children were seen in may have promoted the use of Turkish subordination. Each child met with an experimenter in monolingual Turkish mode (Section 2.2). This may not only have discouraged codeswitching into Swedish, but also promoted the use of Turkish and Turkish-style complex utterances, including nonfinite subordination.²³

Thirdly, the life experiences of the Turkish-Swedish children and the way the majority language Swedish influences (or does not influence) their Turkish may be different from the experiences of other bilingual Turkish children. It is difficult to make comparisons here, since not all studies provide background information on participants (such as socioeconomic status, migration history, extent of language exposure in and outside the home, exposure to literacy activities, etc.). For our participants and their families, we do have detailed background information (Section 2.1; Bohnacker, 2020; Öztekin, 2019) and knowledge of the Swedish institutionalized childcare system. For the majority of our participants, Turkish appears to predominate in the home. Most of our children are growing up with

23. In a related vein, Onar Valk (2013) found clear behavioral differences in (adult) heritage-Turkish speakers in the Netherlands concerning Turkish subordination, depending on whether they were tested in bilingual Dutch-Turkish or in monolingual Turkish mode.

two Turkish-L1 parents born in Turkey. Their parents generally regard Turkish as important, alongside the majority language Swedish which the children are exposed to at (pre)school from an early age for a major part of the day. Some children are also exposed to a third language in the home. Most families live in low-status disadvantaged urban areas, and many parents have relatively low-status occupations. However, all parents have some elementary (literacy) education, and the majority have attended secondary or upper secondary school; some also have tertiary education. Many parents report at least some regular book reading and storytelling activities with their child in Turkish. Thus, most of our participants receive extensive exposure to Turkish in the home.²⁴ It is likely that this experience promotes the children's active use and development of Turkish, including complex language and subordination. We do not know whether this general background picture is very different from that of other Turkish-heritage children that were included in studies on the acquisition of subordination in other countries.

At the same time, there is a lot of individual variation in our own sample – both concerning social and language background, and concerning subordinate constructions. Irrespective of age, certain children produce subordination, or certain types of subordinate constructions, to a much higher degree than other children. From systematic checks of our social and language background data, some distributional patterns emerge that point to potential commonalities in background for children producing (or not producing) certain types of subordinate constructions. For instance, the few Turkish relative clauses in our corpus were found to cluster in a small group of children who did not only receive a lot of Turkish input, but whose parents, irrespective of SES, regularly, or even daily, carried out joint book reading and storytelling activities in Turkish (Section 4). The relatively few complex purposive clauses denoting subject difference were also produced by a small group of children with similar backgrounds (Section 6.2). By contrast, the rare nonstandard formation of complement clauses clustered in a handful of children who grew up in households that did not have two Turkish-L1 parents born in Turkey and who were exposed a lot to Swedish (Section 5.2). Ungrammatical purposive marking (again a rare occurrence, Section 6.2.3.2) was also only found in a few children who were not exposed to any home literacy activities in Turkish but reportedly had difficulties with language, conditions that are very unusual in the larger sample. Such impressionistic statements, enticing as they may seem, would need to be confirmed by a more rigorous quantitative analysis in the future. We should also

24. Some parents also report that Swedish educators and officials have encouraged them to speak Turkish with their child and foster minority-language development in the home (Bohnacker & Öztekin, in progress; Öztekin, 2019). Swedish legislation is generally known for a language policy that is positive towards multilingualism.

like to reiterate that for several other subordination types, we have not been able to discern any distributional patterns that would straightforwardly relate their use (or non-use) to background factors.

This study is the first to explore the acquisition of Turkish subordination in bilingual Swedish-Turkish children in detail; it is probably also the first to investigate subordination in Turkish-speaking children comprehensively and on a relatively large scale. Therefore, our findings may not only inform international research on heritage language Turkish, but also advance our knowledge about Turkish child language development in general.

Abbreviations

1	First person	PAR	Participle
2	Second person	PAS	Passive
3	Third person	PL	Plural
ABL	Ablative	POSSIB	Possibility
ACC	Accusative	PROS	Prospective
AOR	Aorist	PRS	Present tense
CD	Conditional	PSS	Possessive
COP	Copular	PST	Past tense
CV	Converb	PTER	Postterminal
DAT	Dative	Q	Interrogative
DEF	Definite	SG	Singular
EVID	Evidential	VOL	Voluntative
GEN	Genitive	*	Ungrammatical structure
INF	Infinitive	[/] or [//]	Pause in utterance
INS	Instrumental	@s	Codeswitch to Swedish
JUNC	Junctior	&	Unclear fragment or filler
LOC	Locative	xx or xxx	Unintelligible word(s)
NEG	Negation		

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Appendix. Recapitulation of causal and purposive clauses

Table I. Morphemes attested in target or non-target causal constructions

Morpheme attested in the data	Target usage in	Non-target usage in a clause which is intended to be
1. -DIGI için	Causal clause	–
2. -(y)AcAGI için	Causal clause	–
3. -DI diye	Causal clause	–
4. -(Ø)Iyor diye	Causal clause	–
5. -mİş diye	Causal clause	–
6. -(y)AcAK diye	Causal clause	Purposive clause (sub. co-reference)
7. -mAK için	Purposive clause (sub. co-reference)	Causal clause
8. -mAsI için	Purposive clause (sub. difference)	Causal clause
9. *-mAyI için	–	Causal clause
10. *-mİş için	–	Causal clause

Note. (1–5) are forms standardly used in causal clauses. (6) is a causal marker also exhibiting non-target usage in a purposive clause. (7–8) are purposive markers also exhibiting non-target usage in the formation of causal clauses. (9–10) are ungrammatical forms attested in causal constructions.

Table II. Morphemes attested in target or non-target purposive constructions

Morpheme attested in the data	Target usage in	Non-target usage in a clause which is intended to be
1. <i>-mAyA</i>	Purposive clause (sub. co-reference)	–
2. <i>-(y)AcAğIm diye</i>	Purposive clause (sub. co-reference)	–
3. <i>-mAK için</i>	Purposive clause (sub. co-reference)	Causal clause
4. <i>-sIn diye</i>	Purposive clause (sub. difference)	Purposive clause (subj. co-reference)
5. <i>-mAsI için</i>	Purposive clause (sub. difference)	Causal clause Purposive clause (subj. co-reference)
6. <i>-(y)AcAK diye</i>	Causal clause	Purposive clause (subj. co-reference)
7. <i>*-mAyA için</i>	–	Purposive clause (subj. co-reference)
8. <i>*-mAyI için</i>	–	Purposive clause (subj. co-reference)
9. <i>*-(y)AcAk için</i>	–	Purposive clause (subj. co-reference)

Note. (1–2) are forms standardly used in purposive clauses. (3–5) are purposive markers also exhibiting non-target usages. (6) is a causal marker also exhibiting non-target usage in the formation of purposive clauses. (7–9) are ungrammatical forms found in purposive constructions.

Table III. Morphemes attested in non-target causal and purposive constructions

Morpheme attested in the data	Target usage in	Non-target usage in a clause which is intended to be
1. <i>-(y)AcAK diye</i>	Causal clause	Purposive clause (subj. co-reference)
2. <i>-mAK için</i>	Purposive clause (sub. co-reference)	Causal clause
3. <i>-sIn diye</i>	Purposive clause (sub. difference)	Purposive clause (subj. co-reference)
4. <i>-mAsI için</i>	Purposive clause (sub. difference)	Causal clause Purposive clause (subj. co-reference)
5. <i>*-mAyA için</i>	–	Purposive clause (subj. co-reference)
6. <i>*-mAyI için</i>	–	Purposive clause (subj. co-reference) Causal clause
7. <i>*-(y)AcAk için</i>	–	Purposive clause (subj. co-reference)
8. <i>*-mİş için</i>	–	Causal clause

PART III

Corpus studies

Perceived global accent in Turkish heritage speakers in Germany

The impact of exposure and use for early bilinguals

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This chapter is concerned with Turkish heritage speakers (HSs) in Germany, here exemplified by 21 early bilinguals during adulthood who live in Hamburg, North Germany. We introduce the population, report their self-perceived proficiency and propose the Turkish Use Score (TUS) that is based on quantitative aspects of language use (e.g., the number of people Turkish is spoken with) and qualitative ones (e.g., schooling in Turkish). In the remainder of the paper, we focus on the perceived accent of these speakers in German and Turkish, discussing the role of Age of Onset (AoO) in German vs. amount of Turkish use. The results show a strong correlation between Turkish use and perceived nativeness in Turkish, while no role of AoO is evident for accent in either language. Our data further suggested a weak (but non-significant) relation between high Turkish use and sounding more foreign in German.

Keywords: Age of onset, language use, language exposure, foreign accent, simultaneous bilingual

1. Introduction

From the 1960s onwards, many people moved from Turkey to West Germany to seek work as part of a formal guest worker (*'Gastarbeiter'*) program. After the Second World War, when Germany (and northern Europe more generally) suffered from a labour shortage and Turkey suffered from unemployment, several guest worker programs were created. These programs were part of bilateral signed agreements, which allowed the recruitment of blue-collar guest workers in the industrial sectors. The agreements, originally restricted to European nations, started with Italy in 1955; West Germany and Turkey reached an agreement in 1961. The

Turkish workers, mostly men, soon became the largest group of immigrants in Germany. The original agreement foresaw that the workers would return to their home countries after one or two years in order to make room for other workers. The agreement with Turkey ended in 1973, but many Turkish workers stayed on and brought their families due to better working and living conditions in Germany (Hunn, 2005). Today's population of Turkish speakers includes the first, second and third generation, many of whom have German citizenship. People of Turkish descent are represented across all employment sectors in Germany.

This chapter will be concerned with German-Turkish bilinguals who have grown up acquiring both languages during childhood. These bilinguals can be considered heritage speakers (HSs) of Turkish because they have acquired Turkish as a minority language at home and German – the majority language of the country – outside their homes. For all of these speakers, Turkish is the native language (L1), and Turkish is the native language of both of their parents. Our participants' first contact with German, by contrast, occurred either through other German-speaking family members, or through other sources. Depending on their age of onset (AoO) in German (defined as their first intensive contact with the language; Mean = 3.5; Range = 0 – 9 years), they may be considered either “simultaneous bilinguals” (2L1s) with two first languages or early “second language learners” (eL2s) of German. For this reason, we deviate from other research on foreign accentedness which used the labels “L1” and “L2”. Instead we use the terms “minority language” and “majority language” when referring to Turkish and German, respectively. We follow common practice in research in HSs by drawing the line between 2L1 and eL2 at the ages of 3–4.¹ As is typical for many HSs, Turkish has turned into their weaker language over time, and they speak Turkish with differing degrees of proficiency. In our study, we will investigate cross-linguistic influence (CLI) in the perceived accent of these bilinguals in both their languages, Turkish and German. We further assess whether the degree to which they sound native or foreign is related to their age of onset (AoO) in German or to the amount of Turkish they use and are exposed to. To this end, we introduce a Turkish Use Score (TUS) that is calculated using self-reported information on Turkish use and input. The bilinguals' accent is assessed by means of a rating study with monolingual native speakers of German or Turkish. In our accent rating study, we will also be using control data from late bilinguals who acquired their L2 after puberty (henceforth L2ers).

1. This division is not necessarily related to some kind of critical period, although such early critical phases have been claimed for morphosyntax (see Meisel, 2009, 2011). We will not be concerned with claims about a critical period here. We are aware of the fact that all our participants fall *within* the critical period postulated by some authors.

There is more than one reason that studying perceived foreign accent is of special interest not only to linguists. First of all, being perceived as non-native in a language may have immediate consequences for a speaker. For example, some potential employers may unfairly discriminate against applicants with non-native sounding accents due to stereotyping or cultural biases (see, e.g., Munro, 2003; Hosodam & Stone-Romero, 2008). Another related aspect is that of identity. The young people with Turkish-German citizenship in our study often report that people in Turkey identify them as coming from Germany, which makes them feel like strangers in their heritage country. A third aspect is that perceived foreign accent can provide insights into the direction that CLI can take (i.e., from the dominant language to the weaker language, or from the first-acquired to the subsequently-acquired language) and the domains in which it may appear (e.g., segmental vs. supra-segmental phonology).

Our paper begins by outlining the background for the foreign accent study (Section 2). Section 3 summarizes the study, including the participants and the TUS. In Section 4, we present the accent rating study and summarize the results. A discussion and conclusion are provided in Sections 5 and 6.

2. Foreign accent in bilinguals

In this paper, we operationalize global foreign accent² as the perceived divergence from a local or standard variety resulting from the influence from another language (Derwing & Munro, 2009). Thus, foreign accent does not equate to divergences based on regional influence or social class.

It has long been observed that adult L2 learners do not typically acquire native-like pronunciation, even after many years of experience with their second language (L2), and even if they have achieved a high level of proficiency in other aspects of language, such as vocabulary and syntax (see, e.g., Flege, Munro, & MacKay, 1995; Birdsong, 1999). It has further been observed that the likelihood of attaining monolingual-like pronunciation decreases with an increasing AoO (e.g., Flege et al., 1995; Flege, Yeni-Komshian, & Liu, 1999; Piske, MacKay, & Flege, 2001). Abrahamsson and Hyltenstam (2009), for example, conducted a large-scale study of 195 Spanish-Swedish bilinguals with differing AoOs (ranging from 1–47 years). Only a small minority of those bilinguals who had started acquiring their

2. It is referred to as “global” because it subsumes (at least) segmental and supra-segmental phonological features. We will be using the term “global accent” rather than “global foreign accent” because not all speakers whose accent we investigated sounded foreign (cf. Lloyd-Smith, Gyllstad, & Kupisch, 2017).

L2 after age 12, while the majority of those with an AoO below age 12, were actually perceived as native speakers of Swedish when rated by native-speaker judges. Nonetheless, even with an AoO below 6 years, speakers were sometimes perceived as foreign. Similar findings were obtained by Flege, Munro, and Mackay (1995) for L1 Italian speakers of L2 Canadian English, in which perceived nativeness decreased in a linear fashion with an increasing AoO, and in which highly discerning listeners were able to detect a foreign accent in speakers with an AoO of under 4. Similarly, Flege et al. (1999) showed that L1 Korean speakers who arrived in the US prior to school age – and who had lived in the US for an average of 20 years and had received all of their education in US schools – had detectable foreign accents. This was true even for those arriving at an age around 3 years, suggesting that, although an early AoO facilitates native-like pronunciation later in life, it is no guarantee. Instead, factors other than AoO, such as relative amount of exposure and use of the language (compared with the other language) need to be taken into account (Flege, 1987). For example, Flege, Frieda and Nozwara (1997) looked at whether the amount of L1 (Italian) use influences L2 English pronunciation in Italian speakers, who were similar in their age of immigration to Canada but different in their self-reported use of Italian. The native Italians who spoke Italian relatively often had significantly stronger foreign accents in English than those who seldom spoke Italian (see also Flege, Munro, & McKay, 1995; Piske et al., 2001; MacKay, Meador, & Flege, 2001). These findings for speakers tested at an adult age are perfectly in line with research on early developing bilinguals (ages 1–5 years), whose two languages are subject to cross-linguistic influence with effects such as acceleration, delay and transfer (e.g., Kehoe, Lleó, & Rakow, 2004; Kehoe, 2018; Lleó, Kuchenbrandt, Kehoe, & Trujillo, 2003; Lleó, 2018).

There have been only a few studies on adult HSs with regard to global accent, though other studies have investigated specific aspects of pronunciation such as VOT (Kupisch & Lleó, 2016; Lein, Kupisch, & van de Weijer, 2016; Oh, Jun, Knightly, & Au, 2003), vowel production (Godson, 2004; Saddah, 2011; Chang et al., 2011), consonant production (Chang et al., 2011) and consonant discrimination (Lukyanschenko & Gor, 2011). A previous study on adult early simultaneous bilinguals compared German–French bilinguals and German–Italian bilinguals in terms of whether they were perceived as foreign or native sounding in their two languages (Kupisch, Barton, Klaschik, Lein, Stangen, & van de Weijer, 2014). The results showed that whenever the language had been acquired in a majority language setting (i.e., French in France, German in Germany, Italian in Italy), the speakers were deemed native speakers of the language. By contrast, when the language had been acquired as a minority language (i.e., French or Italian in Germany, German in France or Italy) most speakers were deemed foreign. That is,

only a few speakers were rated on par with monolingual-speakers of the minority language (Kupisch et al., 2014).

On the other hand, they were less often perceived as foreign sounding compared to second language learners. Flores and Rato (2016), too, have compared early bilingual HSs of Portuguese to late second language learners, finding that they were perceived as less foreign sounding. Given the diverging results in the literature on HS outcomes in pronunciation, it remains somewhat unclear which factors facilitate monolingual-like pronunciation during adulthood. Based on previous research, we suspect that both the relative use of the heritage language and AoO might play a role. Therefore, we would like to address the following questions:

- RQ1: Do heritage speakers attain monolingual-like pronunciation in their minority and majority language?
- RQ2: What is the role of AoO in attaining monolingual-like pronunciation in their minority and majority language?
- RQ3: What is the role of relative use of the heritage language in attaining monolingual-like pronunciation in their minority and majority language?

Note that we refrain from using the term “native-like” when referring to the perceived nativeness/foreignness of our participants, using “monolingual-like” instead. The reason is that, by definition, our participants are all native speakers of Turkish (and some of German). Thus, whether or not they are native need not be questioned. What we (or researchers in general) seem to imply when speaking of nativelikeness is whether or not someone sounds like a monolingual, which is why we find the term “monolingual-like” more appropriate.

3. Participants and proficiency profiles

3.1 Participants

The data used in this study is part of the TEDH corpus. TEDH was gathered between 2010 and 2012 in the project “Foreign Language Acquisition in German-Turkish bilinguals” under the direction of Tanja Kupisch and under the coordination of Ilse Stangen as part of the research initiative LiMA (Linguistic Diversity Management in Urban Areas) in Hamburg, Northern Germany.³ The corpus contains spoken

3. Our heartfelt thanks to Deniz Akpınar, Cigdem Güney, Merve Özçalan, Yasemin Sahingöz and Kathrina Walsh for supporting the data collection and sharing our enthusiasm for the topic.

interviews with German-Turkish bilinguals lasting for 20 minutes. The interviews were recorded with an M-Audio MicroTrack II and subsequently transcribed by native speakers. A total of 25 speakers were interviewed in three languages: Turkish, German, and English. In this paper, we will focus on the German and the Turkish data.

In the following study, we have included 21 adult German-Turkish bilingual speakers. The decision of which speakers to include was based on the availability of good quality sound files in both languages as well as the speakers' age (we have excluded teenagers due to their different voice quality). The predominant language in the bilingual speakers' homes when they grew up was Turkish, the bilinguals' parents were all native speakers of Turkish born in Turkey, and Turkish was also the language that most parents used with one another. Interaction between the participants and their parents was mostly in Turkish, but sometimes also in German. When talking to their siblings, most used German and switched to Turkish occasionally. Almost all participants felt at ease using both German and Turkish and generally considered themselves to be more proficient in German than in Turkish (see self-ratings in Figures 1 and 2). An initial overview of background data is provided in Table 1.

Table 1. Overview of background information for the German-Turkish bilinguals

Ages	Mean: 27.7 years, Range: 20–40 years
Place of Residence	Hamburg (Northern Germany)
Place of Birth	Northern Germany ($n = 17$), Turkey ($n = 4$)
AoO in German	Mean = 3.5 years; Range = 0–9 years
Varieties of German	Standard German (one speaker spoke a Franconian variety in addition)
Varieties of Turkish	Standard Turkish (one speaker with an Anatolian variety in addition)
Relative language use	More German than Turkish, ($n = 11$), both languages equally frequently ($n = 8$), exclusively German ($n = 2$).
School degree	Abitur ($n = 20$), Realschule ($n = 1$)

Our population is relatively homogeneous in terms of their academic and professional backgrounds. All but one left school with the highest possible school exam (the German *Abitur*, which corresponds to 12–13 years of schooling), and all but two were studying or had a university degree. The group thus represents a rather high socioeconomic status (SES), though not necessarily coming from academic families. Although they spoke Standard German in lexical and grammatical

Thanks to Annalia Proietti Ergün and Marina Zielke for supporting the accent rating study and to Henrik Gyllstad for creating the TUS score with us.

respects, they also had contact with *Kiezdeutsch*, which is a new dialect that has evolved amongst younger speakers in multiethnic urban environments in Germany (Wiese, 2012). *Kiezdeutsch* is also spoken by Germans without a migration background and not restricted to speakers with a lower SES.

It is further noteworthy that 10 of the speakers had attended Turkish schools (usually one afternoon or weekend class per week) in Germany for at least some years. While all bilinguals were exposed to Turkish from birth, the age of first exposure to German varies. The fact that they grew up in Germany may suggest that exposure to German happened from birth, since German is spoken on the streets and on the radio or TV. On the other hand, exposure does not necessarily equal input. We therefore asked for the speakers' first intensive contact with German, explaining that we are interested in the moment at which they were first aware that German was the language most frequently spoken in their environment and when they were starting to interact in German, i.e., trying to understand and use the language. This was often interpreted to coincide with kindergarten or school entry and varied between birth and 9 years (mean = 3.5 years). This means that even the sequential bilinguals in this study fall within the "critical period" proposed by many authors (e.g., Scovel, 2000). For the purpose of our paper, claims about critical periods are not essential, though we would like to point out that existing empirical evidence for age effects amongst early bilinguals is somewhat contradictory to the idea of a clear cut-off point between early and late bilinguals.

3.2 Self-rated proficiency

The bilinguals were asked to rate their language according to the four skills (reading, writing, speaking and comprehension), for German and Turkish separately. The choices given were native-like, excellent, very good and good. Figure 1 shows the proportion of speakers who rated themselves as native-like, excellent, very good, or good in Turkish; Figure 2 shows the same for German. The general picture is that the bilinguals considered themselves to be more proficient in German than in Turkish. Moreover, they tended to rate their oral skills higher than their written skills, especially in Turkish. In Turkish, many speakers further report advantages in comprehension skills over production skills. Overall, these self-reports tend to reflect the participants' language experience, as they have had fewer occasions to use Turkish, especially when it comes to reading and writing the language.

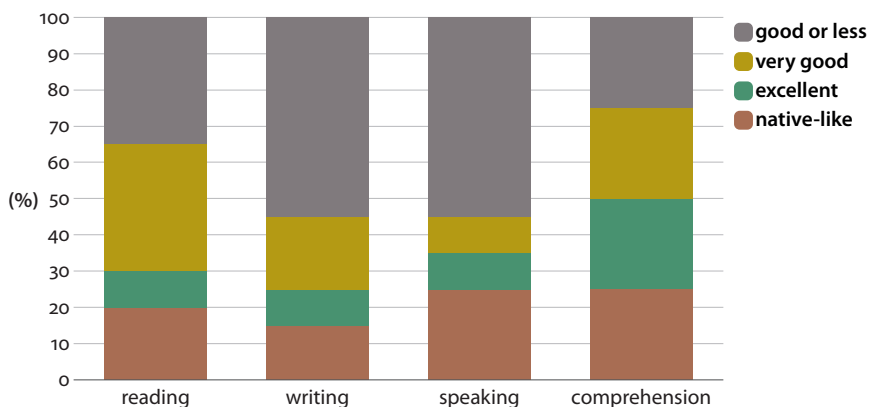


Figure 1. Self-perceived proficiency in Turkish

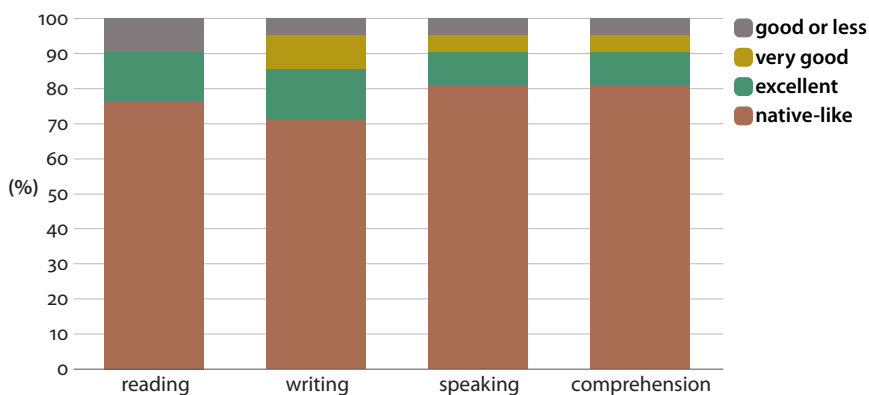


Figure 2. Self-perceived proficiency in German

3.3 Turkish Use Score

Based on data from a detailed questionnaire, we quantified our participants' use of Turkish, taking into account language use at home (during childhood), quality of Turkish use, current language use and visits to Turkey. The data is summarized in Table 2. Some factors were weighted more heavily (indicated in brackets), as they were believed to have greater impact, for example Turkish schooling, types of contact with Turkish, and stays in Turkey. The scoring procedure is explained below the table.⁴ Note that the questionnaire was not originally designed for the purpose of calculating this score and is subject to improvement in future studies. We nevertheless report the scoring and numbers in detail to allow for replication or adjustment.

4. The scores were first used in Lloyd-Smith et al. (2017), but not explained in detail there, and there was a smaller number of participants.

Table 2. Overview of participants, age of onset and calculation of Turkish Use Score (TUS)

		D1_ARZ	D2_EME	D3_GUL	D4_CIG	D5_GOK	D6_BUR	D7_HAT	D8_HAK	D9_PIN	D11_UJK	D16_SIB	D17_ABD	D18_TUL	D19_AYS	D20_DUY	D23_SAN	D24_ALT	D25_SEV	D26_YAS	D27_NUR	D28_MUR	
	First intensive contact w/ German (AoO, years)	7	2.5	1	1	3	2	0	4.5	3	6	3	5	5	6	3	5	4	3	0	9	5	
T use at home ⁱ	Mother's L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	L with Mother	1	1	0.5	1	1	1	0.5	1	1	1	0	1	1	1	0	1	1	1	1	1	1	
	Father's L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	
	L with Father	1	1	1	1	1	1	0.5	1	1	1	0	1	1	1	0	1	1	1	0.5	1	1	
	L between parents	1	1	1	1	1	1	1	1	1	1	0.5	0.5	1	1	0.5	1	1	1	1	1	1	
	L among siblings	0.5	0.5	0.5	0	0	0.5	0.5	0	0.5	0.5	0	0.5	0	0.5	n.a	0.5	0.5	0.5	0.5	0.5	1	0.5
	L at home after age 6 (school entry)	0.5	1	0.5	1	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0	1	0.5	1	0.5	1	1	
Quality of T use	Turkish schooling ⁱⁱ	1	1	1	0	1	0.5	1.5	0	0	2	0	1	0	0	0	0	0.5	0	0	2	0	
	Types of contact with T ⁱⁱⁱ	0.5	3	3	3	3	3	2	3	3	3	3	3	1	3	3	1	2	3	2	2	3	
Current T use	Relative use of T vs. G ^{iv}	0	3	3	1	3	1	1	3	3	3	1	1	1	1	0	1	1	3	1	3	1	
	T at work/ school ^{vi}	0	0	0.5	0	0	0.5	0	0	0.5	0	0.5	0	0	0	0	0	0	0	0.5	0	0.5	
	T during spare time ^{vi}	0	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5	0.5	0	0	0	0.5	0	0	0	0.5	0.5	0	0	
	No. of people T is spoken with ^{vii}	0	1	0	0	0	0	0.5	0	0	0	0	1	0	0	0	0	0	0	0	0.5	0	
	Relationship to people speaking T with ^{viii}	0	1	1	0.5	1	1	1	1	1	0.5	0.5	1	1	1	1	0.5	0.5	1	1	1	1	0.5

(continued)

Table 2. (continued)

		D1_ARZ	D2_EME	D3_GUL	D4_CIG	D5_GOK	D6_BUR	D7_HAT	D8_HAK	D9_PIN	D11_ULK	D16_SIB	D17_ABD	D18_TUL	D19_AYS	D20_DUY	D23_SAN	D24_ALT	D25_SEV	D26_YAS	D27_NUR	D28_MUR
Time	No. of years in Turkey ^{ix}	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0	0	2	0
spent in Turkey	No. of visits per year in Turkey (past 5 ys) ^x	0	1	1	1	1.5	1	1	1	1	1	2	1	1	1	1	0.5	1	1	0.5	0	0.5
	TUS=Turkish Use Score (excluding AoO)	7.5	17	15.5	12	15.5	14	12	14	16	16	10	13.5	9.5	14	7	11.5	11.5	15	10.5	17.5	12

- i. For all these measures: 1pt. = Turkish, 0.5pts. = German and Turkish, 0 pts. = German (no siblings was treated on par with speaking only German = 0 pts.)
- ii. 2 pts. = was part of Turkish schooling system (in Germany or Turkey) for 4 years or more, 1 pt. = 1 year in Turkish schooling system or optional afternoon classes, 0 pts. = no formal training
- iii. 3 pts. = listening/speaking/reading/writing; 2 pts. = one of the four types missing, 1 pt. = listening/speaking
- iv. 3 pts. = 100% Turkish, 2.5 pts. = 75% Turkish/25% German, 2 pts. = 50% Turkish/50% German, 1 pt. = 25% Turkish/75% German, 0 pts. = 100% German
- v. 1 pt. = Turkish used at work or school, 0 pts. = Turkish not used at work or school
- vi. 1 pt. = Turkish used during spare time, 0 pts. = Turkish not used during spare time
- vii. 1 pt. = 11+ people, 0.5 pts. = 6–10 people, 0 pts. = 0
- viii. 1 pt. = family/friends/relatives + classmates/colleagues, 0 pts. = family/friends/relatives
- ix. 2 pts. = 3 years or more, 1 pt. = 1 year, 0 pts. = none
- x. 2 pts. = more than twice per year, 1.5 pts. = 1–2 times per year, 1 pt. = once per year, 0.5 pts. = 1–2 times within 5 years, 0 pts. = never

4. Foreign accent study

There were two separate rating experiments: one for German, and one for Turkish. The German experiment was carried out in Hamburg, Germany. The Turkish experiment was carried out in Istanbul and Bursa, Turkey.

4.1 Speakers

The central group of participants in this study were the 21 early bilinguals introduced in Section 3.1 (see also Table 1). These speakers were assessed in both of their languages, i.e., German and Turkish. In addition, there were two control groups in the German experiment and two in the Turkish experiment. The control groups in the German experiment consisted of monolingual speakers of German with no knowledge of Turkish ($n = 5$) and L2 German speakers who were monolingual L1 speakers of Turkish ($n = 5$). The controls in the Turkish experiment were monolingual speakers of Turkish with no knowledge of German ($n = 5$) and L2 Turkish speakers with German as their L1 ($n = 5$). The monolingual German speakers spoke a standard variety (mostly northern German), and the monolingual Turkish speakers spoke varieties present in the Black Sea region, East Anatolia, the Aegean region and Istanbul, thus representing the (standard) varieties potentially spoken by the early bilingual participants. Table 3 provides an overview of the speakers in the rating study, including the group of bilinguals.

Table 3. Participants in the accent rating study

	German experiment			Turkish experiment		
Languages	L1 German	L2 German	bilingual	L1 Turkish	L2 Turkish	bilingual
Number	5	5	21	5	5	21
Mean age	24.7	35.4 years	27.8 years	32	49 years	27.8 years

4.2 Raters

A total of 15 monolingual German and 15 monolingual Turkish raters took part in the two experiments. The raters for German experiment were aged between 20 and 63 years (mean = 33), and raters for the Turkish experiment between 29 and 58 year (mean = 42.2). All Turkish raters were university students or held university degrees; the same was true for all but three of the German raters. The criterion for being monolingual was that only one language was used at home during childhood and that this was the only language of instruction at school. The raters had no special training in phonetics or linguistics. Moreover, the raters in the Turkish

experiment did not know German, and the raters in the German experiment did not know Turkish, although they may have overheard the languages in their environment. Furthermore, all raters lived in their native country.

4.3 Preparation of material

As mentioned before, there were two separate accent rating experiments, one testing the 2L1 speakers' perceived foreign accent (FA) in German (the "German experiment"), and one testing their perceived FA in Turkish (the "Turkish experiment"). For both experiments, two speech samples for each speaker were extracted from the naturalistic interviews. One sample was 10 seconds, the other 20 seconds long. In preparing the samples, care was taken to ensure that they did not contain long pauses, interruptions (by the interviewer), or grammatical mistakes and, moreover, that the content did not contain any clues as to the speaker's origin (e.g., going to school in Ankara). The decision to use samples from naturalistic interviews was motivated by the idea that these samples best reflect the speakers' speech as perceived in real-life situations.

4.4 Procedure

Stimuli were presented by means of a PowerPoint presentation. There was a training session with two examples including one monolingual and one L2 speaker. These speakers were not part of the actual study. Raters were explicitly told that regional accents, such as Bavarian or Austrian for German, or Anatolian for Turkish, should be judged as native even if these accents differed considerably from their own. The raters were further instructed to focus on the speakers' accents rather than choice of words (in previous experiments in which the raters were asked to justify their judgments, the raters had occasionally pointed out vocabulary that they deemed untypical for native speakers).

The procedure was inspired by De Leeuw et al. (2010), with some additions. In the experiment, raters were asked to judge the speakers' accents in four steps. They were first presented with a sample of 10 seconds and asked

- i. to decide whether they thought the speaker's accent was foreign or native,
- ii. to indicate how confident they were about their judgment ("certain", "semi certain" and "uncertain").

Figure 3 illustrates the first two steps of the experiment as they were presented to participants (the slides have been translated into English, and the original version was in color). There were additional steps but we will only report on the first two

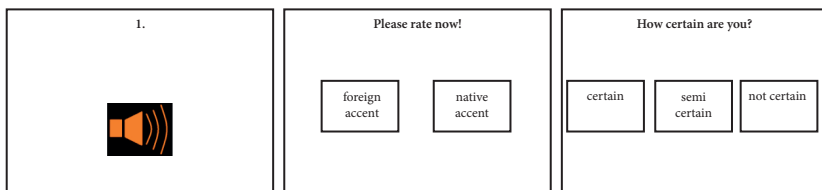


Figure 3. Rating procedure (Slide 1: Listening; Slide 2: Nativeness rating; Slide 3: Certainty rating)

steps in this paper.⁵ Note that our procedure differs from previous accent rating tasks that have used Likert scales to indicate accentedness. We were more interested in using a categorical accentedness judgment (native vs. foreign) because this is often what matters for HSs in real-life situations, such as job interviews. The second step was added to obtain more nuanced judgments. This two-step procedure allowed us to analyze the coarse and the nuanced judgments separately.

There were two semi-randomized versions of each experiment, and each experiment took 40–50 minutes to complete. The ratings and comments were manually protocolled and recorded, and the protocols were then checked against the recordings.

4.5 Results

To provide an initial overview, we first show how many times speakers in each group (L1, L2, early bilingual HSs) in the two experiments were rated as native based on the first step in the rating experiment. The results are illustrated in Figure 4, combining the results from the German and the Turkish experiment (recall that the early bilinguals are the same speakers for both languages, while the L1 monolingual and L2 speakers are different for Turkish and German). Figure 4 shows that the L1 Turkish raters always perceive L1 Turkish monolinguals as native, and the L2 Turkish speakers predominantly as foreign. Similarly, the L1 German raters always perceive L1 German monolinguals as native, and the L2 German speakers predominantly as foreign. In both languages, the early bilinguals are perceived as native significantly more often than the L2ers based on the results of a Wilcoxon rank sum test for non-parametric, independent samples ($W = 18.5, p = .02$ for German; $W = 14, p = .01$ for Turkish). In contrast, they are perceived as noticeably less native than the L1 monolingual controls in both languages (the latter comparison cannot

5. The remaining steps were (iii) listen to an additional sample of the same speaker, (iv) revise or confirm the original judgment and (v) comment on the accent features (see Stangen, Kupisch, Proietti Ergün, & Zielke, 2015 for more details).

be tested statistically because the L1 group exhibit so little variability). Finally, Figure 4 shows that the bilinguals receive a slightly higher number of native ratings for German than for Turkish, though this difference is not significant based on a paired samples t-test ($t = -0.87653$, $df = 20$, $p = .39$).

For a second impression, we look at the range of ratings for the bilinguals in their two languages in terms of how certain the raters were when classifying the speakers as either native or foreign-sounding. Figure 5 shows that the raters' degree of certainty is comparable in the Turkish and in the German experiment, but that the raters show a considerably higher degree of uncertainty when rating the early bilinguals as compared to rating L1 or L2 speakers.

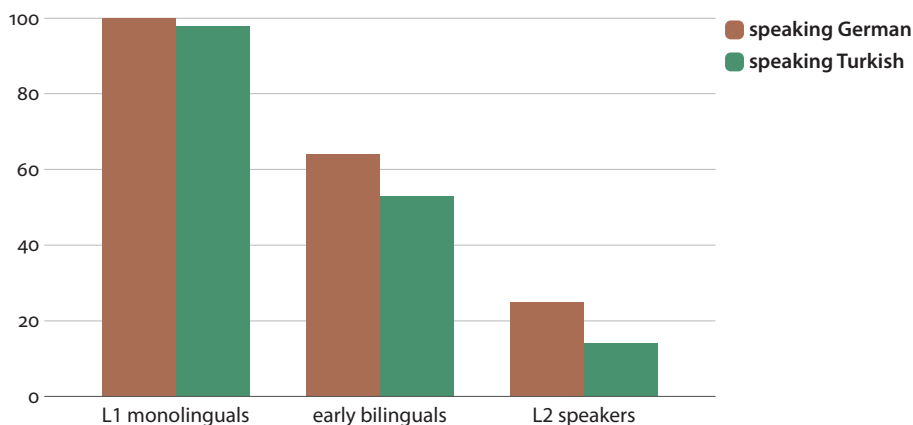


Figure 4. Percentage of times speakers in the three groups in the two experiments were perceived as native

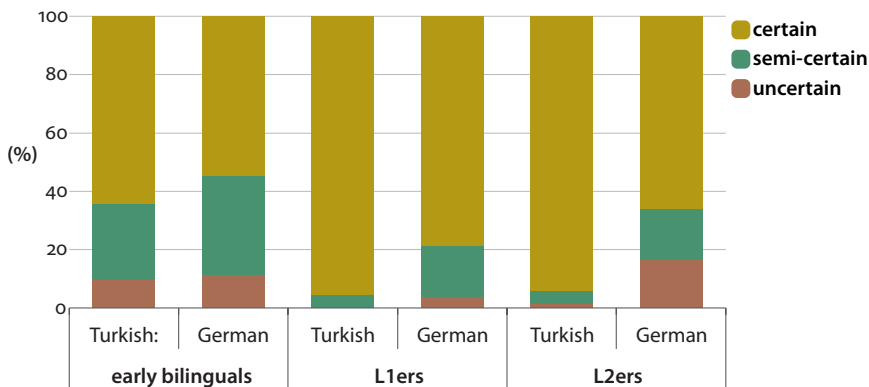


Figure 5. Percentage of certain, semi-certain, and uncertain ratings across groups (German and Turkish)

Finally, we compare the ratings given to the bilinguals in Turkish and German to the L1 monolinguals and the L2 speakers (Figure 6). The numbers from 1–6 on the y-axis represent the 6 different options that resulted from conflating the two steps of the rating procedure, where 1 = Native/certain; 2 = Native/semi-certain, 3 = Native/uncertain; 4 = Non-native/uncertain; 5 = Non-native/semi-certain; 6 = Non-native certain (cf. De Leeuw et al., 2010). Conflating the ratings in this manner allowed us to identify mean accentedness scores, where 1 = ‘No accent’ and 6 = ‘Strong accent’. The labels on the x-axis refer to the three different speaker groups, namely the early bilinguals (EBs), the L1 monolinguals (L1ers) and the L2 speakers of Turkish and German respectively (L2ers). The boxes represent 50% of the data and the median is indicated by the thicker line. In the Turkish experiment, the bilinguals received a mean accent strength of 3.33 ($SD = 1.38$), the L2 speakers a mean of 5.25 ($SD = 1.46$), and the monolinguals a mean of 1.12 ($SD = .14$). In the German experiment, the early bilinguals received a mean score of 2.90 ($SD = 1.4$), the L2 speakers a mean of 4.84 ($SD = .93$), and the monolinguals a mean of 1.28 ($SD = .04$). The visualisations in Figure 6 indicate a large degree of variability for the bilinguals in both languages when compared to the control groups, who are more clearly identified as “non-accented” or “accented” respectively.

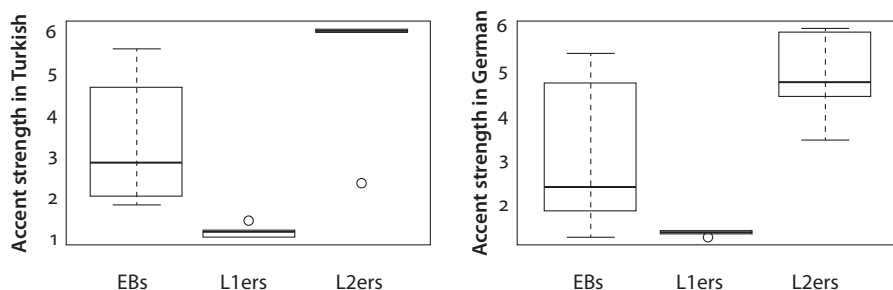


Figure 6. Mean accent strength ratings in Turkish (left) and German (right) for the early bilinguals (EBs), L1 monolinguals (L1ers), and L2 speakers (L2ers)

4.5.1 *Role of Turkish use and perceived foreign accent*

To explain why some bilinguals are perceived as monolingual-like while others are not, it is possible to surmise that a higher use of Turkish increased the likelihood of a monolingual-sounding accent in Turkish, and, conversely, a foreign-sounding accent in German. To provide an initial impression of any potential relationships between the TUS and the number of times rated non-native, we visualize these two variables in a scatter plot in Figure 7. Indeed, the plot on the left-hand side seems to suggest that the more Turkish the participants used, the less often they were perceived as accented in Turkish. The plot on the right suggests the opposite;

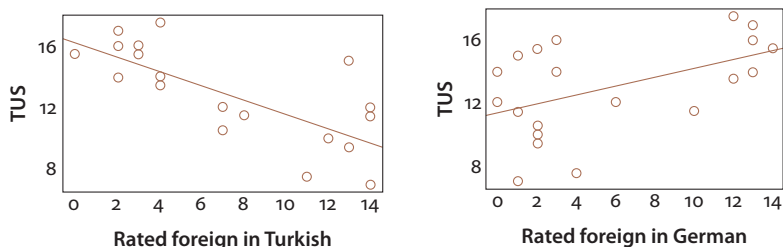


Figure 7. TUS score and the number of times rated foreign in Turkish (left) and German (right) (bilingual participants)

namely, that a higher TUS could be related to a more foreign-sounding accent in German – though this trend is not as clear.

In the next step, correlation coefficients were calculated for the variables plotted in Figure 7. Since the dataset was quite small ($N = 21$) and there were many tied ranks in the data, a non-parametric Kendall's tau correlation was used (Field, 2005, p. 131). The obtained coefficients are reported in Table 4.

Table 4. Correlation coefficients (Kendall's tau, $N = 21$) between the TUS, the number of times rated foreign in Turkish and German, and AoO in German

	Rated foreign in Turkish	Rated foreign in German	AoO German
TUS	-.61***	.31	-.04
Rated foreign in Turkish		-.27	-.03
Rated foreign in German			.01

. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$, two-tailed

Confirming the trend suggested in Figure 7, there is a strong negative correlation between the amount of Turkish use (TUS) and the number of times the bilinguals were rated foreign in Turkish ($r_{\tau} = -.61$), which reached significance at $p = .0002$. For German, we find a weak positive correlation between TUS and the number of times the bilinguals were rated foreign in German ($r_{\tau} = .34$) which, however, does not quite reach significance ($p = .06$). This seems to suggest that monolingual-like accent in Turkish improves with a higher TUS, while it remains unclear whether or not Turkish use relates to a stronger-sounding accent in German.

4.5.2 Role of perceived foreign accent and age

Another possibility we considered is the effect of AoO in German, with two possible predictions. The first would be that bilinguals who were exposed to German from birth (simultaneous bilinguals) might have an advantage in German over those who

started acquiring German between the ages of 3 and 9 (eL2s). The second was that a late AoO in German may be beneficial for a native-sounding accent in Turkish, since Turkish would have more time to develop independently, i.e., without any potentially interfering influence from a second phonological system. However, as displayed in Table 4, no correlation between AoO and perceived accent was found for either language. Figure 8 displays the lack of relationship between AoO and accent in German and Turkish below.

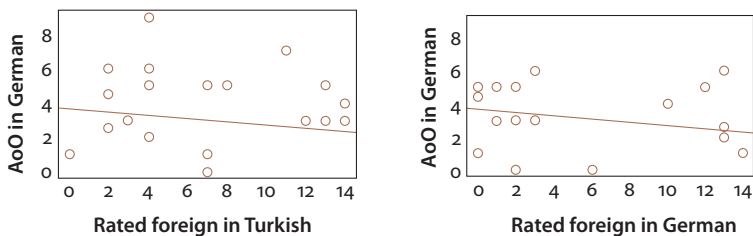


Figure 8. AoO in German and the number of times rated foreign in Turkish (left) and German (right) (bilingual participants)

5. Discussion

We set out to explore whether HSs are perceived as monolingual speakers of their two languages given their early AoO in both languages (RQ1). The results indicated that our speakers were perceived as accented more often than L1 monolingual speakers and less often than L2 speakers. This was the case for both languages with no noticeable difference between German and Turkish. Next, we investigated the effect of AoO in German on perceived accentedness in German and Turkish (RQ2). Since not all speakers were exposed to German from birth and since age effects may be observed in the language of individuals with an AoO as early as 3 years (e.g., Meisel, 2009, 2018, for morpho-syntax; Flege et al., 1995, for global accent; and Abrahamson & Hyltenstam, 2009, for a global assessment of language proficiency), a foreign accent in German was deemed possible for those who were exposed to German later. Our results did not confirm this idea, as AoO in German and perceived accentedness turned out to be unrelated. We also explored the possibility that early AoO in German has a negative effect on perceived nativeness in Turkish, since an earlier AoO in German implies less time for Turkish to develop independently, and since we know that there are quantitative and qualitative effects of CLI in early bilingual development (e.g., Kehoe, 2018; Lleó, 2018) with potential consequences for acquisition outcomes. Although theoretically possible, there was no negative

impact of earlier exposure to German on accent in Turkish – at least not when tested in adulthood. Finally, we compared our speakers in terms of their relative amount of Turkish use (RQ3). We did not measure their use of German because they all had massive exposure to German, being the dominant language of their national society, while engagement with Turkish differed greatly, as is typical of HSs. As expected, the likelihood of being perceived as a monolingual speaker of Turkish increased with the amount of Turkish use. We further investigated whether increased Turkish use affects the likelihood of being perceived as foreign in German. A weak but non-significant correlation was found in between increased Turkish use and being perceived as foreign more often in German, suggesting that, with a larger data set, Turkish use could be one factor that explains the likelihood of being perceived as non-native in German.

5.1 Age of onset and accentedness

The results from our analyses suggested that AoO in German did not affect perceived accent in either language. As mentioned earlier, our participants all fall within the range of what is often referred to as the “critical period” and, viewed as such, one could say that age effects should not be expected in German anyway. On the other hand, we think that this group’s high incidence of sounding foreign in their majority language is in need of explanation. And, as mentioned in the introduction, several studies have found non-native sounding pronunciation in speakers with an AoO far below what is usually considered to be the critical period, which seemed to suggest that AoO effects were plausible. That said, given the vast number of opportunities for engagement with German across the lifespan, it is perhaps unsurprising that any AoO-related differences that *might* have existed amongst these participants during childhood have in fact disappeared by adulthood. These findings force us to redirect our attention and provide us with opportunities to study other factors than AoO.⁶ In this paper, we have studied the potential effects of HL use by proposing a scoring system that operationalizes engagement with the HL across the lifespan. This score, which should be built on in future studies, seems to be a step in the right direction.

6. We agree with an anonymous reviewer that one possible reason for the lack of correlation found between AoO and perceived accent could be a lack of statistical power resulting from our small sample size, and from the lack of range and numerical differentiation within the AoO variable itself – and the need to take self-reported AoO at face value. However, we wish to stress that what we found is not so unusual in light of previous findings, and wish to highlight the fact that our results may indeed look different to studies that look at L2 learners, since we focused on early bilinguals.

5.2 Accentedness in the majority language (The “Kiezdeutsch Hypothesis”)

One puzzling result is the fact that previous studies with HSs using the exact same design found no accent in the majority language (Kupisch et al., 2014), raising the question of why such a large number of HSs in this study were perceived as accented in German. One difference between the present study and Kupisch et al. (2014) was that the latter tested exclusively simultaneous bilinguals with exposure to both languages from birth. However, since AoO was found to be non-significant in the present study, the form of bilingualism cannot explain the differences between the (2014) study and the present one. Instead, we suspect that the raters perceived subtle differences in the bilinguals’ free speech that were not clearly due to a foreign accent, but instead due to their variety of German. As mentioned earlier, the bilingual participants in this study were exposed to *Kiezdeutsch* and, even if their speech did not contain many obvious lexical or grammatical markers of *Kiezdeutsch* in the interviews, some raters repeated phrases that are considered typical of *Kiezdeutsch*, such as *weißt Du* ‘you know’ and its reduced variant *weissu*, as well as *und so* ‘and so on’. They further expressed their uncertainty about whether someone sounded foreign or not by mentioning that the frequent use of the particle *so* could be a feature of *Jugendsprache* (youth language). Finally, two raters also commented on the dark voice quality of the speakers, though without being able to specify this further. We suspect that these aspects may have affected the raters’ judgments of the HSs, while the monolinguals controls’ speech did not show any such traits, or were better able to control them in the interview situation. Importantly, *Kiezdeutsch* is more likely to be associated with speakers of Turkish than with the speech communities studied in Kupisch et al. (2014) – i.e., HSs of French and Italian. Thus, in order to move beyond speculation, a systematic analysis of the data in terms of the typical phonological markers of *Kiezdeutsch*, including acoustic analyses, seems both warranted and necessary.

5.3 Future directions

Finally, while AoO did not have significant effect and TUS did, there is also the possibility that other factors influenced the results. A likely candidate is language aptitude. Abrahamsson and Hyldenstam (2008) investigated the L2 proficiency and language aptitude of 42 near-native L2 speakers of Swedish (i.e., individuals whom actual mother-tongue speakers of Swedish believe are native speakers). The results confirmed previous research suggesting that a high degree of language aptitude is required if adult learners are to reach a L2 proficiency that is indistinguishable from that of native speakers. However, additionally, their study also identified small

yet significant aptitude effects in early bilinguals. Although we cannot go back and test our participants, we would strongly advocate that aptitude be controlled for in future studies

Overall, we do not see our results as supporting the idea that better mastery of the (indigenous) majority language happens at the expense of the minority language, as suggested by Jaspaert and Kroon (1989) in a study on language shift in Italians in the Netherlands, because all speakers were highly proficient in German, while proficiency in Turkish varied. We found a weak but non-significant correlation ($p = .06$) between increased Turkish use and a stronger accent in German. We do not wish to rule out the possibility that, if this experiment was repeated with a larger number of participants, this correlation might reach significance. Such a result would be in keeping with earlier research by Flege and colleagues, who pointed out that accentedness in the majority language increased with use of the minority language (e.g., Flege, Munro, & McKay, 1995; Piske et al., 2001; MacKay, Meador, & Flege, 2001). However, as our results were not significant and since earlier research did not focus on HSS, this needs to be explored further in the future.

Finally, we have looked at a group of HSS that may seem to be exceptional given their relatively high educational status, and since previous research has primarily looked at HSS with lower SES. We believe that a proper description of the linguistic situation of HSS should include speakers with a higher educational level, because a focus on speakers with a lower educational level might give us a wrong, or at least one-sided, impression, especially if the educational level in monolinguals is not comparable. We do not think that studying HSS with a high educational level is in need of justification, as they are also part of the community of HSS. Future research should take this into account.

6. Conclusion

We investigated global accent in the two languages of German-Turkish bilinguals, who are heritage speakers of Turkish. We found that some speakers were perceived to be foreign in Turkish, some in German, and some in neither language. As a group, and in both languages, they were more likely to sound foreign than monolinguals and less likely to sound foreign than late bilinguals. The likelihood of early bilinguals attaining or retaining an authentic pronunciation during adulthood, at least in our study, was more clearly related to the amount of contact and use over the lifespan rather than by AoO in the majority language. In other words, within this specific population, i.e., early bilinguals learning their L1 as a HL, the positive effect of HL use is clear, while that of AoO is not.

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Turkish in Germany

An adult-state twice-told-tale approach to not-entirely-balanced childhood bilingualism

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This is a qualitative case study of Turkish as a heritage language in Germany, viewed in the context of one adult speaker's bilingualism: Sadik, a young worker and Turkish-German bilingual born and raised in a western German industrial town. The study is empirically based on a language-biographical reminiscence, which surfaces in both languages: first in German, then in Turkish, in a more or less informally elicited narrative. The language-biographical perspective is taken as a starting point for explorations into structural comparison at the discourse and sentence level. The aim is to identify phenomena that have a function in verbalising language-biographical memory and that can at the same time be cross-linguistically compared.

Keywords: Turkish-German bilingualism, diaspora Turkish, twice-told tale, sociolinguistic vitality, bad language syndrome, majority language anxiety, language-biographical memory, complexity, noun phrase modification, complement constructions, vulnerable morphosyntax, narrative density, evaluative stance

1. Introduction

Discourse-analytical comparisons of narratives elicited in two languages (Perdue, 1984; Fienemann, 2006) have a tradition in diaspora Turkish research since Aarssen's (1996) narrative-functionally operationalised study of reference and temporality in Turkish and Dutch. Rehbein's (2007a) study of Turkish-German autobiographical narratives was based on data from children who had immigrated with their parents in the 1970s and 1980s. It operationalizes the communicative purpose of autobiographical narrative, namely to mentally process personal experience in an interaction, in a number of functional positions: a general categorisation of the experience, the establishment and detailed verbalization of central givens of the

plot, elucidation of problematic points, and emotional evaluation. These functional discourse positions can be cross-linguistically operationalized in terms of various categories of the nominal system, discourse-level connectivity markers, clause subordination and other grammatical categories, allowing for a set of comparisons. Schroeder (2016) compares oral and written versions of schoolchildren's narratives in terms of syntactic complexity and information packaging. Considering Montrul's (2012) idea that heritage bilingualism emerges most visibly in adulthood, there is a research gap with respect to bilingual versions of adults' narratives.

This is a qualitative case study of Turkish as a heritage language in Germany, viewed in the context of one adult speaker's bilingualism: Sadik, a young worker and Turkish-German bilingual born and raised in a western German industrial town. The study is empirically based on a language-biographical reminiscence, which surfaces in both languages: first in German, then in Turkish, in a more or less informally elicited narrative. The language-biographical perspective is taken as a starting point for explorations into structural comparison at the discourse and sentence level. The aim is to cross-linguistically compare phenomena that have a function in verbalizing language-biographical memory. Sadik's anecdote is told not just twice in the two languages, but also contains numerous repetitions inside each narrative, drawing attention to issues of emotional evaluation and information packaging.

The idea of a person's or a community's linguistic "heritage" has been under discussion from perspectives of (1) sociolinguistic vitality, (2) discourse structure of language-biographical narratives, and (3) vulnerable morphosyntax. The present study, whose focus is on qualitative documentation and illustration, is framed under these three perspectives and attempts to relate them to each other. In which sociolinguistic context has a second-generation adult bilingual developed his bilingualism? How does he remember his earlier experience and how does he self-assess his linguistic competence? How does he organize his talk? How can categories that have in the past been looked at be applied in this new context? The present study addresses two research gaps: one pertaining to the adult-state of bilingual Turkish, another one pertaining to the language-biographical background of early successive immigrant bilinguals.

Section 2 briefly recapitulates the mentioned strands of discussion. Section 3 presents the sociolinguistic and language-biographical context of the data. Section 4 and 5 approach the data from a discourse-analytical and morphosyntactic perspective, respectively. Section 6 synthesizes the results, highlighting the points at which these three strands of research intersect.

2. Theoretical perspectives: Heritage bilingualism and heritage Turkish

2.1 Sociolinguistic vitality

From a sociolinguistic point of view, the vitality of a minoritized language has been measured on an implicational scale, ranging from public to private (Fishman 1991; Ferguson, 2000 [1959]; Fishman, 2000 [1967]; Maas, 2008, 2010). While the absence of a language from public domains such as the school system or a city's administration has been counted as less an indication of threatened vitality than would its absence from family communication, this view does not yet address the question of formal registers and associated complexity (Maas, 2010; Rosenberg & Schroeder, 2016), and it also neglects the significance of public recognition for maintenance (Bayram & Wright, 2017).

Benmamoun, Montrul, and Polinsky (2013a, p. 133) characterise a “heritage language” as lacking the “support[...] and regulat[ion] through laws and institutions, such as language academies [as well as] a standard, prestige, written variety used in government and media, and [use] for literacy and education imparted at school”. While not all of these aspects apply to Turkish, which is the official language of a sovereign state, the situation in Germany is regionally mixed, with the state of North-Rhine Westphalia providing relatively good infrastructure (Schroeder, 2016; Bayram & Wright, 2017; Pfaff, Dollnick, & Herkenrath, 2017; Küppers, Schroeder, & Gülbeyaz, 2014; Küppers, Şimşek, & Schroeder, 2015). It must still be assumed that “access to the structures of formal registers of Turkish remains limited” (Schroeder 2016, p. 93).

2.2 The discourse structure of language-biographical narratives

The discourse-analytical research field of multilingual autobiographical narrative analyzes traces of emotionally impacting individual experience (Franceschini, 2004; Franceschini & Miecznikowski, 2004), in particular lack of participation due to second-language status (Rehbein, 1986, speaking of *Sprachnot* ‘linguistic distress’; Fienemann, 2006; Bührig & Rehbein, 2017), racist discrimination (Werlen, 2002), ‘othering’ (Dirim, 2015),¹ or other forms of sociolinguistic marginalisation (Treichel, 2004) – in the discourse structure of recorded narratives. Sevinç and Backus (2017) distinguish ‘majority language anxiety’, existentially associated with exclusion, power imbalance, and socioeconomic pressure, leading to avoidance, insecurity, and health

1. Dirim (2015) observes ‘othering’ uses of the category ‘German as a second language’ specifically in German schools.

issues, and ‘heritage language anxiety’, with a stressful and isolating impact on private life, as two sides of a ‘bad language syndrome’ from which their Turkish-Dutch informants suffer. Key factors in this situation are ideologies and negative evaluations by members of the respective monolingual societies, who apparently feel entitled to act as gatekeepers, and elder family members’ feedback style, together resulting in language-biographical distress with an alienating socio-emotional impact on various aspects of their lives from both sides. Herkenrath (2018) observes a dense use of speaker deixis in a narrative of angry protest against the denial of competent speaker status, voiced in Turkish by an experienced speaker of L2 German, from the same Ruhr Havzası context as the present study.

2.3 Morphosyntactic issues

One key concept of “heritage language” research is the idea of an unbalanced form of bilingualism; this might in principle concern grammatical areas, but also discourse-level phenomena or formal registers. Benmamoun, Montrul, and Polinsky (2013a: 133) speak of heritage immigrant bilingualism as a situation in which speakers’ first acquired language ‘did not develop fully at age-appropriate levels because of the individual’s switch to the ‘societally-dominant language’, such that “by early adulthood a heritage speaker can be *strongly* dominant in the majority language” (Montrul, 2012). The development of a language into a heritage language is biographically characterized in terms of a ‘downward trajectory of attrition and reanalysis’, such that children may know more than adult speakers. A second-generation immigrant is a typical heritage speaker (Montrul, 2012; Benmamoun, Montrul, & Polinsky, 2013a).²

The ‘multilingual repertoires’ (Matras 2009) of Turkish-speaking immigrants to Western Europe have been in the focus of Turcological investigations of grammatical change, which compare diaspora Turkish with control data from Turkey. Findings point towards ongoing innovation, functional expansion, but also loss of functional differentiation, mostly in the speech of bilingual children. At the same time, caution has been called for in terms of long-term intergenerational developments (Johanson, 1991). Under terms such as ‘incomplete acquisition’ or ‘fossilisation’ (Polinsky, 2009), these phenomena have also caught the interest of heritage language studies. – The present study attempts, in a data-driven take, to identify points at which these three strands of research might intersect.

2. Benmamoun, Montrul, and Polinsky (2013b) mention other types of heritage languages, such as indigenous languages or simply languages that have been minoritized in a historical process of coexistence. Concerning the present field context, Kurmanji Kurdish in Turkey might be a case in point; in the German context, it can be said to be under double pressure.

3. Sociolinguistic context of a disinherited bilingual biography

Since this investigation is about the relation between the two languages and the place of Turkish in this particular bilingual constellation, the selected case study is based on two larger narrative passages selected from a 72-minute recording: a German and a Turkish version of a bureaucratic incident, of eleven and eight minutes (1,996 and 981 words) in length, respectively. The recording is part of the LiLaC corpus (Herkenrath in preparation), collected in the first half of 2009 in public and half-public places, such as cafés, mosques, associations, or open spaces, in the German *Ruhrgebiet* (*Ruhr Havzası* in Turkish), with a content focus on subjective experience of German bureaucracy. The data were elicited with as little pre-structuring intervention as possible. In accordance with the project rules at the time, the language of these conversations is, largely, German, with occasional digressions into Turkish.³

The recording was selected because of its sociolinguistic interest for heritage language research. The informant talks about social aspects of his bilingualism, lending them two linguistic forms: in the societally dominant language German, which is his early-childhood second language, and in the immigrant language Turkish, his dominant family language and everyday language among his friends. The recording took place in Sadık's closely-knit small neighborhood, an urban island in the midst of a heavy-looming industrial scene. Sadık and his friend invite us for a round of honeydew melons and after-work drinks in a schoolyard, empty in the afternoon except for a handful of adolescents, who are playing soccer at some distance and join us for short conversations. One striking observation in this context is that, among this population of German-born bilinguals, many seem to have an issue about the quality of their German (Herkenrath in preparation: LiLaC_AEBS16_LOG).

3. The LiLaC project (Literacy between Languages and Cultures, 2007–2010), was sponsored by the Volkswagen Foundation and supervised by Prof. Dr. Uta Quasthoff, Prof. Dr. Ludger Hoffmann and Prof. Dr. Michael Kastner, TU Dortmund University, Department of German and Department of Psychology. Its corpus consists of 73 recordings (68.8 hours) overall; I here only refer to the LiLaC_AH subcorpus, i.e. those 29 conversations (31.3 hours) which I collected myself. The LiLaC corpus excludes all conversations I recorded in Turkish only; they form yet another corpus, not treated here. I wish to thank the Volkswagen Foundation and TU Dortmund University for generous and helpful support as well as Uta Quasthoff and Ludger Hoffmann for teaching me about their conception of 'milieu-based fieldwork' and allowing me the freedom to try out my own approach. I warmly thank Mehtap Şahin for sharing the field experience with me on that particular summer afternoon; the conversation with Sadık is one of several that took place on this occasion. Last not least, I wish to anonymously thank Sadık, without whose open-minded, generous, and humorous hospitality the present study would not have been possible.

Sadık was born at the beginning of the nineteen-eighties, roughly on the same block where we later met him, and grew up there as an early-successive Turkish-German bilingual. As emerges from his narrative, the young boy cannot feel at home in his school, he plays truant and ends up an unsuccessful pupil, relegated at some point to a school for children with special learning needs. This situation eventually leads to the questioning of his right to permanently live in his country of birth, concretized in a particular bureaucratic incident occurring with his coming of age, when his application for unlimited residency is turned down. In the eyes of the person in charge, Sadık is not well enough ‘integrated’. The issue would have raised considerable bureaucratic hurdles, jeopardizing his plan to bring his young wife and to found a family – a historically loaded affair, in Germany. Sadık finds a surprising and paradoxical solution to this problem, officially adopting German citizenship, an option he never seriously considered for himself and which he takes his self-ironic distances with – but which works.

In the following passage (Example (1)), Sadık denies competent native speaker status for his German. The sociolinguistic experience of exclusion is present as a language-biographical trace.

- (1) LiLaC_AEBS16_Sadık_Part2, 00:16:01–00:18:48: *Örgtnwie kann ich nich so gut Deutsch*

Project name: LiLaC, transcription convention: HIAT

Date of recording: 12 June 2009, place of recording: school yard

Sad: Sadık, male speaker, languages: Turkish, German;

Anita: Anita, female interviewer; Mel: Meltem, female interviewer

[16:04]

Sad	• • <i>danke für Ihn • ganz • Verständnischkeit, • ääh, • dat Se misch zugehört habm.</i>
Sad [eng]	• • thank you for • all your • understanding, • eeh, • that you listened to me.

[16:09]

[16:11]

Sad	<i>Isch hab auch bestens... • •</i>	<i>Wollt isch auch bestens</i>
Sad [eng]	I also did my best...	I wanted to explain as best I
Ani	<i>((atmet ein)) Neee!</i>	<i>Also...</i>
Ani [eng]	<i>((takes a breath)) Nooo!</i>	<i>I mean...</i>
Ani [k]	<i>loud and protesting</i>	

[16:16]

Sad	<i>erklärn. Also... • • • So gut hab isch auch kein Deutsch, also, damit Sie • misch</i>
Sad [eng]	<i>could. I mean... • • • My German isn't that good, I mean, for you to • understand me or</i>
Ani	<i>Waaaaas?!</i>
Ani [eng]	<i>Whaaaat?!</i>

[16:17]

Sad	<i>verstehn oder nisch.</i>	<i>Jaa, oder soo.</i>
Sad [eng]	not.	Yeah, or something.
Ani	<i>Neeee!</i>	••• <i>Quatsch, nein, also...</i> • <i>Nein, also ich hab mich</i>
Ani [eng]		Nooo! ••• <i>Nonsense, no, I mean...</i> • <i>No, I mean, I have to</i>
Sad [k]	((laughing))	

[16:21]

Sad	<i>Ja, danke schön, danke schön.</i>	<i>Dankschön.</i>
Sad [eng]	Yeah, thank you, thank you.	Thank you.
Ani	<i>bedankn, also ich/ ich will also o...</i>	<i>Wunderbar, • also...</i>
Ani [eng]	thank you, I mean, I/ I also want to...	Wonderful, • I mean...

[16:25]

[16:29]

Sad		•• <i>Danke schön.</i>	<i>Wenn isch no/ besser</i>
Sad [eng]		•• Thank you.	If I knew • German e/
Ani	<i>Des • ähm... Ganz toll...</i>	• <i>Das ()s.</i>	<i>Dankedanke.</i>
Ani [eng]	That • ehm... Really great...	• That ().	Thanks, thanks.
Ani [k]			softly

Sad	• <i>Deutsch könnte, hätt isch Ihn noch al • les erzählt, aber...</i>
Sad [eng]	even better, I'd have told you every • thing, but...

[...]

[18:31]

Sad	<i>Weil wir hier in/ hier in ((place name))...</i>	<i>Wir redn nich • miteinander Freunde</i>
Sad [eng]	Because we here in/ here in ((place name))...	We don't talk • with each other friends

[18:35]

Sad	<i>Deutsch oder so.</i>	• <i>Wir sind nur am Türkn/ • nur am Türkischreden.</i>
Sad [eng]	German or something.	• We only keep turking/ • only keep speaking Turkish.
Ani	<i>Hmhñ'</i>	<i>Ja. • Ja klar.</i>
Ani [eng]		Yeah. • Yeah of course.

[18:37]

Sad	<i>Hjaaa. Darum vergesst man auch den Deutsch.</i>	<i>(Aber is) wirklich.</i>
Sad [eng]	Yyeah. That's why you forget the German.	(But is) really.
Ani		<i>Echt? ((lacht))</i>
Ani [eng]		Really? ((laughs))

In light of these data, and differing from the usage in this volume, the concept of 'heritage language' will be taken here in its literal, everyday, meaning, namely as a cultural and existential resource that one receives from one's elders and that helps one to survive in the surrounding society. In complementary fashion, society may – or may not – let individuals participate in its collective heritage.

Sadık's heritage comes from two sources: he has inherited competence in Turkish from his family who had come to Germany before his birth, and inherited competence in German from the surrounding society – a society that has certain ways of disinheriting its more recent members. A German-born child, son of Turkish immigrants, Sadık finds himself disinherited from access to public domains of German, in symbolic ways and with practical and economic consequences; this also affects his access to the more sophisticated registers of written German, documented elsewhere in the data. A highly entertaining narrator in both languages at age twenty-six, he seems unable to consider himself a competent speaker of German.⁴ By contrast, Turkish, the language in which he feels competent, seems to feel almost like a refuge; see (2):

(2) LiLaC_AEBS16_Sadık_Part2, 00:18:51: *Türkçem iyidir. Türkçe iyidir*⁵

	[18:51]	[18:54]
Sad		<i>Konuşurum.</i>
Sad [eng]		I would.
Ani	<i>Biraz da şey konuşur musunuz, Türkçe?</i>	<i>Böyle' • bunu da • • kaydetmiş olalım</i>
Ani [eng]	Would you speak a little, ya know, Turkish?	That way • we'd also • • record a bit of that, I

[18:58]

Sad	<i>Tamam, konuşurum. • • • Türkçem iyidir.</i>	<i>Türkçe iyidir.</i>
Sad [eng]	Okay, I can speak. • • • My Turkish is good.	Turkish is good.
Ani	<i>böyle biraz yani.</i>	<i>• Eh, tsu... ()...</i>
Ani [eng]	mean.	

Sad	<i>Sorun, söylem size istediğinizi.</i>
Sad [eng]	Ask, I'll tell you what you want.

This sociolinguistic situation will next be linked to discourse-analytical aspects of narrative detailing and emotional evaluation, in the two versions of Sadık's tale, and to degrees of density in which they are realised.

4. One might consider this a case of 'heritage language reversal' (Benmamoun, Montrul, & Polinsky 2013b: 261f). The idea of this concept is that all one's acquired languages become part of one's linguistic heritage. Sadık's utterance in 00:18:37: *Darum vergesst man auch den Deutsch* 'That's why you forget the German' might seem to point in this direction. However, those authors' young successive bilinguals forget their English only after returning to Japan.

5. The transition from the German to the Turkish part of the recording is interesting in and of itself. The auditive impression is one of a change in tone, speed, and also in style – the latter towards a more formal or literate register. This somewhat vague impression has been the motivation behind the present attempts at morphosyntactic and discourse-analytical operationalization. The passage actually calls for phonological attention, in the future.

4. The passport: Detailing, condensation and evaluation in discourse

Experiences of linguistic distress related to societal marginalization can be emotionally difficult to talk about. Based on Treichel (2004), one can expect this difficulty to leave traces in terms of speechlessness on the one hand and great detail at the expense of condensation on the other. ‘Detailing’ has been described as a narrative function that brings the perspective closer to individual aspects of a narrative, important for attention anchoring and the background-foreground distinction (Fienemann, 2006, pp. 22–27, 33; Rehbein, 2007a: p. 422f). However, the issue is also related to the packaging of information: if not outbalanced by some degree of condensation, detailing may slow down the flow of a narrative plot; it may steer the narrative away from an evaluation. ‘Evaluation’ means that a narrator verbalizes his/her cognitive and emotional stance towards the narrated events and categorizes the particular experience, thereby integrating it into his/her general world knowledge (Rehbein, 2007a, p. 422). Since one central function of autobiographical narrative is to share thoughts and emotions with a sympathetic listener, the verbalization of this evaluation is important. Sadık’s tale, while containing certain elements of a narrative of suffering, more specifically: of linguistic distress (Rehbein, 1986; Fienemann, 2006, p. 28, 156–176), is also a story of victory (Fienemann, 2006, p. 28, 123–136). In sharing his thoughts and emotions, Sadık also elicits consensus. As will be seen, however, he takes a long time to tell his story, producing repetitions and returns, softening his emotional evaluations by embedding them in loops and circles. Other passages are more condensed, making for effects of greater formality at the morphosyntactic level.

In what follows, I arrange passages from the two versions on a scale of increasing density for the integration of details and evaluations into the narrative, namely in the form of: (1) interjections and nonverbal expression of emotion, (2) loosely connected discourse chunks, (3) paratactic sequences of clauses, (4) discourse-level finite hypotaxis, at the larger discourse level, to be looked at in this section, and in the form of (5) nonfinite hypotaxis, (6) nominalization, and (7) (modified) noun phrases, at the utterance-internal level, to be looked at in Section 5.

I will next present larger passages from the German and the Turkish version of the tale, all thematically evolving around Sadık’s new passport (and some other related pieces of paper). In several loops, Sadık comes back to details surrounding this document, giving emotional evaluations as well.

4.1 Interjections and exclamations

In Example (3), in Turkish, Sadık emotionally evaluates what his German passport means to him, namely a long succession of years to look forward to, without fear of losing the right to reside in his country of birth. Notwithstanding some misgivings, he expresses his relief about not having to constantly apply for either residence or a new Turkish passport, both of which are burdensome and cause feelings of bureaucratic insecurity. The German passport has one big advantage: it lets a person live in peace. Sadık celebrates this peace: *İki bin on sekize • kadar ohoo, ben yaşacam daaa! ((güler)) Ooohoho!* ‘Until two thousand and eighteen ohoo, I’ll enjoy life! ((laughs)) Ooohoho!’ (00:25:00). These emotions hardly find their way into a textualized form; albeit not without self-irony, they are verbal eruptions, interjections, and laughter.

(3) LiLaC_AEBS16_Sadık_Part2, 00:25:00: *Ooohohoh!*

[24:52]

Sad	<i>ama ((1.7s)) oturum olmadığma memnunum.</i>	••• <i>Pasaportumu</i>
Sad [eng]	but ((1.7s)) I’m satisfied about there not being a residence permit.	••• I’m not satisfied

Sad	<i>değiştirmeme memnun değilim. ((güler))</i>	<i>İki bin on sekize • kadar ohoo, ben</i>
Sad [eng]	about having changed my passport. ((laughs))	Until two thousand and eighteen ohoo,

[25:00]

[25:03]

Sad	<i>yayaşacam daaa! ((güler)) Ooohoho! ((güler))</i>	<i>İki bin dokuz ()ız da! Hohoho!</i>
Sad [eng]	I’ll enjoy life! ((laughs)) Ooohoho! ((laughs))	
Ani	((laughs)) •• ((laughs))	((laughs))

[25:06]

Sad	•• <i>İki bin on sekize daha yıllar var!</i>
Sad [eng]	•• Until two thousand and eighteen, there are still many years!
Ani	((takes a breath)) ((laughs))

[25:09]

[25:13]

Sad	<i>De me? •• Ohohohoo! •• Ben onu unuttum bile. • İki bin on sekize u...</i>
Sad [eng]	Aren’t there? •• I even forgot this. • Until two thousand
Ani	((laughs))

[25:18]

Sad	••• <i>Yaşcam ben de!</i>	<i>Belli olmaz, ölüm yaşamak ().</i>
Sad [eng]	and eighteen... ••• I’ll enjoy life, too!	You never know, death • to live
Ani	•• <i>Tabii ki.</i>	<i>Ya uzatılması</i>
Ani [eng]	•• Of course.	Yeah, it’s no

4.2 A chunk of background details about an emotion

Example (4), in German, begins a new narrative loop, based on an emotional evaluation, one of relief and amazement at the long-term security that he now has, a result of the past events, anchored in the present situation: *Jetzt is aber auf jedn Fall Hammer* ‘Now definitely is awesome’ (00:11:10). The entire passage is dialogic, involving the interviewer’s verbal participation, and after synchronizing his emotion with the interviewer, Sadık briefly details on their cause, namely the ease with which he can now obtain secure residence. He describes this present and future ease at some length, thereby interrupting the plot, which was set in the past: *Direkt verlängern, fünf Minuten! Habm die dat schon* ‘Directly extend it, five minutes. They’re done with it’ (00:11:29). The contrast between what he had been used to and this new situation is what causes his amazement.

(4) LiLaC_AEBS16_Sadik_Part2, 00:11:10: *Jetzt is aber auf jeden Fall Hammer*

	[11:10*]		[11:13]
Sad [eng]		((1.2s))	<i>Jetzt is aber auf jedn Fall Hammer.</i>
Sad [eng]		((1.2s))	Now definitely is awesome.
Ani	• <i>Jaa’.</i>		• <i>Das s echt der Hammer.</i>
Ani [eng]			• That sure is awesome.

[11:17]

Sad	<i>Sch hab jetz pff... • • Z/ seit ((1.2s))</i>	<i>zweitausend achtzehn ist der noch gültig.</i>
Sad [eng]	I now have pff... • • =/ since ((1.2s))	two thousand and eighteen it still is valid.

[11:23*]

Sad		<i>Eine Stunde.</i>
Sad [eng]		One hour.
Ani	((1s)) <i>Ja, und dann gibts ja automatisch n neun, da is ja kein • • • Ding ()...</i>	
Ani [eng]	((1s)) Yeah, an then you automatically get a new one, that’s no • • • big deal ()	

[11:26]

Sad	<i>Nisch ma eine Stunde, fünf Sekunden. Geh sch nach ((Ortsname))...</i>
Sad [eng]	Not even an hour, five seconds. I just go to ((place name))...
Ani	<i>Jaa, verlängern</i>
Ani [eng]	Yeah, to get it

[11:29]

Sad	• <i>Direkt verlängern, fünf Minuten! Habm die dat schon.</i>	<i>Die</i>
Sad [eng]	• Directly extend it, five minutes. They’re done with it.	They
Ani	<i>lassen () (man auch), jaa ja...</i>	<i>Jajaa, das...</i>
Ani [eng]	extended (), yeah yeah...	Yeah, that...

4.3 Chunks of evaluation inserted into the plot

Sadik frequently intersperses chunks of evaluation into his plot advancement. The initial humiliation, the authorities' refusal to grant him unlimited residency in his country of birth, requires a lot of working through, creating repetitive loops. In (5), he imagines meeting the lady from the foreigners' authority again and talking to her. He interrupts this imagined dialogue to insert an emotional evaluative, dedicating them a separate chunk of his talk (00:08:37 onwards).

(5) LiLaC_AEBS16_Sadik_Part2, 00:08:37: *Was is • unbefristet und • deutsche Pass*

[08:26]

Sad	••• <i>Isch werd ihr sagn: Hier. Du Scheißer du, hier.</i>
Sad [eng]	••• I will tell her: Here. You shit here.
Ani	<i>Was würdest du ihr sagn?</i>
Ani [eng]	What would you say to her?

[08:30]

Sad	<i>┘ Isch hab jetz deutsche Pass. ••• Sie könn jetz den Unbefristeten...</i>
Sad [eng]	<i>┘ I now have German passport. ••• Now the unlimited you can...</i>
Ani	<i>((1.5s)) Ja'.</i>

[08:35]

[08:37]

Sad	<i>So. •• Weiße? ••• Was is • unbefristet und • deutsche Pass? ••• Sind</i>
Sad [eng]	<i>Yep. •• Ya know? ••• What is • unlimited and • German passport? ••• Aren't</i>
Ani	<i>Ja'.</i>

[08:42]

[08:44]

Sad	<i>dat nisch <u>Beerge</u> Unterschiede? • Ne? Das sind doch <u>voll</u> die Berge Unterschiede.</i>
Sad [eng]	<i>those mountains of difference? • Right? Those are huge mountains of difference, ya</i>

[08:45]

[08:47]

[08:49 *]

[08:49]

Sad	<i>•• Unbefristeten • is so eine/• <u>so</u> kleine <u>Berg</u>, <u>deu</u> tsche <u>Staats</u></i>
Sad [eng]	<i>know. •• Unlimited • is such a/ • such a small mountain, German</i>
Ani	<i>Ja'.</i>

[08:50*]

[08:52]

Sad	<i>angehörlichkeit is <u>soo</u> eine Berg. Ne? Isch hab jetz deutsche</i>
Sad [eng]	<i>citizenship is such a mountain Right? I now have German citizenship.</i>
Ani	<i>Ja'.</i>

In (6), in Turkish, Sadik has just learnt that the authorities link his present residential status to his school performance, a matter of several years ago. He verbalizes his emotional reaction, bewilderment and alienation, in a two-utterance discourse chunk part of the plot-advancing dialogue.

(6) LiLaC_AEBS16_Sadık_Part2, 00:19:54: *Dedim, allalla, dedim*

Sad	<i>zamanında okula gitmemişsiniz, okul(u) hep schwänzen yapmışsınız, dedi.</i>	••• Dedim,
Sad [eng]	the time, you didn't go to school, you used to skip school, she said.	••• I said, oh

[20:01]

Sad	<i>allalla, dedim, şimdi bu • Rathausdan benim okulun ne alakası var? dedim. Okula</i>
Sad [eng]	my God, I said, now what has my school to do with this • townhall? I said. When I went

Sad	<i>gittiğimde ben on altı yaşındaydım, şimdi on sekiz yaşındayım, dedim.</i>
Sad [eng]	to school, I was sixteen years old, now I'm eighteen years old, I said.

Ani	<i>Ga().</i>
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Sad	<i>Yok, dedi, siz, dedi, okula gitmemişsin, ben size unbefristet vermiyorum, dedi.</i>
Sad [eng]	No, she said, you, she said, didn't go to school, I won't give you unlimited, she said.

4.4 A chunk of detail to ensure understanding

Example (7), describing the scene in which Sadık surprises the official with his naturalization certificate, contains a chunk of background detail, a side interaction with the interviewer to ‘ensure understanding’ (Kameyama 2004). Beginning shortly before 00:10:45: *Sie kenn doch diese grüne Urkunde* ‘You know this green document, don't you?’ and ending after the interviewer confirms her understanding (*Jaja, ich hab schon gesehen, ja* ‘Yeah yeah, I've seen it, yeah’), after which Sadık moves back to the main thread of the actual plot: *Jaa, isch hab denen ()/ ich hab gesagt: Hier haste den!* ‘Yeah, I/ I told those ones: Take that’ (00:10:53–00:10:56).

(7) LiLaC_AEBS16_Sadık_Part2, 00:10:31: *Sie kenn doch diese grüne Urkunde*

[10:31*]

[10:33]

Sad	<i>Sch komm wieder hier rein.</i>	•• Hadder gesacht: Okay.
Sad [eng]	I'll be back.	•• So he said: Okay.
Ani	<i>Hmhm̄</i>	<i>Jaa.</i>

[10:37]

[10:40]

Sad	••• Hab_isch gesacht: Hier, du Scheißer!	<i>Weißte? ((1.2s)) Mit</i>	••• deutschee
Sad [eng]	••• Here, you shit!	Ya know? ((1.2s)) With	••• German

[10:45]

Sad	<i>Staatsangehörigkeit • urkunde.</i>	<i>~Sie kenn doch diese grüne Urkunde.</i>
Sad [eng]	certificate of • naturalization.	~You know this green document, don't you?
Ani		<i>Jajaja.</i>

[10:48]

Sad	<i>Sch weiß nisch wie... • Wenn man Deutsche geboren ist.</i>
Sad [eng]	I don't know how... • When one is born German.
Ani	<i>Nee, dann kricht man das nisch.</i>
Ani [eng]	No, then you don't get that.

[10:51]

Sad	<i>Nein, ne?</i>	<i>Aber wenn man später deutsch wird,</i>	<i>kriegt man</i>
Sad [eng]	You don't, do you?	But when you become German later.	you get like a
Ani		•• <i>Nee nee.</i>	<i>Dann kricht man die.</i>
Ani [eng]		•• No no.	Then you do get that.

[10:53]

Sad	<i>so eine Urkunde.</i>	<i>So eine grüne Urkunde kricht man. (Je)tzt/ isch hab...</i>
Sad [eng]		You get like a green document. (Now) I have... ((takes a
Ani	<i>Jaa' ja'.</i>	<i>Jaja, ich hab schon gesehn, ja.</i>
Ani [eng]		Yeah yeah, I've seen it, yeah.

[10:56]

Sad	<i>((atmet ein)) Jaa, isch hab denen ()/ ich hab gesagt: Hier haste den!</i>
Sad [eng]	breath)) Yeah, I/ I told those ones: Take that.

4.5 Plot-advancing, detailing parataxis

The data contain several passages in which Sadık advances the plot by verbalizing details of the events. These passages can often be dialogic.⁶ In (8), in German, Sadık step by step describes how he learns about the actual conditions to be met for naturalization.

(8) LiLaC_AEBS16_Sadık_Part2, 00:01:47: *Bin isch nach Ordnungsamt gegangen*

[01:47]

Sad	••• <i>Bin isch nach</i> ••• <i>Ordnungsamt gegangn.</i>	<i>Hab isch gesacht: Isch hab/ isch will</i>
Sad [eng]	••• I went to the ••• public order office.	I said: I have/ I want to ((takes a breath))

Sad	•• <i>deutsche Staatsangehörigkeit ((atmet ein)) anmelden.</i>	<i>Ham sie gesacht: Okay, kein</i>
Sad [eng]	register for •• German citizenship.	They said: Okay, no big deal.

[01:53]

Sad	<i>Thema. ••• Ham sie gesacht: Ja, Sie brauchn drei/ • drei Monate von Schulabschluss.</i>
Sad [eng]	••• They said: Well, you need three/ • three months before your school

[02:02]

Sad	•• <i>Also jetz äh • Neunte, • Z/ Achte • und Siebte.</i>	<i>Die wolltn</i>
Sad [eng]	certificate. •• I mean now eh • ninth, • t/ eighth • and seventh form.	They wanted
Ani		<i>Hrñhñ'</i>

6. Chafe (1994, p. 217) points out the creative aspects of direct speech presentation. Given the limitations of word-by-word remembering, he suggests that it is above all the evaluative information of the speech that is remembered and that the actual wording is a re-creation.

[02:05]

Sad	<i>den Zeugnis habm.</i>	<i>((schmatzt, holt Luft))</i>	<i>Habich_gesacht: Okay, kein Thema,</i>
Sad [eng]	the report card.	((smacks, takes a breath))	I said: Okay, no big deal, I'll get it
Ani		<i>Hm̃'</i>	

Sad	<i>werd ich Ihn besogn.</i>	<i>Bin_ich nach Schule gegangen, hab ich denen • alles rausgeholt.</i>
Sad [eng]	for you.	I went to school, got • everything out from them.

In Example (9), from the beginning of the Turkish version, Sadık describes how he learns that his application for unlimited residence will not work. The actual passport is presented as a minor, albeit decisive, detail at the basis of his complex social situation: his age, his need to bring his wife to Germany, his job situation, his housing situation, in other words: one by one the conditions he is asked to fulfil, how he fulfils them, and how he is asked to fulfil additional conditions, until finally, they get to the one condition that he cannot fulfil: integration into the society into which he was born. The style of this passage is paratactic, almost without any connectors, and dialogic; the noun phrases are mostly nonmodified.

(9) LiLaC_AEBS16_Sadık_Part2, 00:19:17: *Şimdi ben Rathaus'(d)a terminim vardı*

[19:15]

[19:17]

Sad	<i>Anlatiim, de me ?</i>	<i>Tamam. • • Şimdi ben Rathaus'(d)a terminim vardı.</i>
Sad [eng]		Okay. • • Now I had an appointment at the townhall.
Ani	<i>• • • Olsun.</i>	<i>Tamam.</i>
Ani [eng]	<i>• • • Okay.</i>	<i>Okay .</i>

[19:20]

Sad	<i>Eeh, karımı getirecektim.</i>	<i>Türkiye'den evliydim.</i>	<i>On sekiz</i>
Sad [eng]	Eeh, I was going to bring my wife.	was married from Turkey.	I was eighteen
Ani	<i>Hm̃'</i>		

[19:24]

Sad	<i>yaşındaydım. Karımı getirecektim.</i>	<i>• V/ ve benim pasımda un/ unbefristet yoktu.</i>
Sad [eng]	years old. I was going to bring my wife.	• A/ and in my passport, I didn't have an u/

[19:30]

Sad		<i>((1.3s) Ben • Rathaus'a gittim. • • Kariya dedim kii/ eeh ben,</i>
Sad [eng]	unlimited one.	<i>((1.3s) I • went to the townhall. • • I told the wife/ eeh, I said, I</i>
Ani		<i>Hm̃hm̃'</i>

Sad	<i>dedim, karımı getiricem. • Benden • üç aylık para (kağıdı) istedi. • • Onu getirdim.</i>
Sad [eng]	will bring my wife. • S/he • wanted a salary receipt for three months. • • I brought that.

[19:36]

Sad	<i>• • • Ev/ • • • evim • eh • evim/ eeh, mietvertrağımı istedi, onu getirdim.</i>
Sad [eng]	<i>• • • Fla/ • • • my flat • eh • my flat/ eeh, she wanted my rental contract, I brought that.</i>

[19:42]

Sad	••• <i>Bana dedi ki: Onlar yetersiz, dedi.</i>	••• <i>Eeh, onlar yetersiz deyince</i>
Sad [eng]	••• She told me: These are insufficient, she said.	••• Eeh, when they said that it was

Sad	<i>dedim ki: Ya benim unbefristetem de yok.</i>	<i>Bana unbefristet lazım,</i>
Sad [eng]	insufficient, I said: Well, I don't have an unlimited one either.	I need unlimited, I said.

[19:49]

[19:52]

Sad	<i>dedim. Biz de, sana unbefristet vermeyiz.</i>	<i>Niye? dedim.</i>	•• <i>Yaa, siz, dedi,</i>
Sad [eng]	And we won't give you unlimited.	Why? I said.	•• Yeah, you, she said, at
Ani		Hm	

4.6 Detailing by means of discourse-level finite hypotaxis

At the very beginning, preceding the actual tale, Sadık gives a condensed summary that precategorizes the event ('vorausschickende Zusammenfassung', Rehbein, 2007a): *Kumma, isch (bin) jetz ääh Türke. Okay, aber jetzt •• habbisch deutsche Pass* 'Look, now, I'm an eeh Turk. Okay, but now •• I have a German passport' (00:00:39). Immediately following, he goes into some detail of why this step was necessary for him, first bringing the focus of attention to some specific point in the past: *Als isch achtzehn wurde* 'When I turned eighteen' (00:00:43), then enchainning a number of causally connected details, which already make up the main ingredients of the plot. These connections are expressed by means of subordinators (*als* 'when', *weil* 'because'), which head finite constructions, embedded both utterance-internally (00:00:47) and between utterances (00:00:52) (a counterpart of Rehbein's 2012 concept of 'discourse coordination'); see (10):

(10) LiLaC_AEBS16_Sadık_Part2, 00:00:39: *Aber jetz •• habbisch deutsche Pass*

	[00:39]	[00:41]
Sad	<i>kumma, isch (bin) jetz ääh Türke.</i>	<i>Okay, aber jetz •• habbisch deutsche</i>
Sad [eng]	look, now, I'm an eeh Turk.	Okay, but now •• I have a German
Ani	<i>Jaa?</i>	<i>Aha.</i>

[00:43]

Sad	<i>Pass.</i>	<i>Isch bin, als isch achtzehn wurde, wurd ich deutsch</i>
Sad [eng]	passport.	I'm when I turned eighteen, was became German • was made pass
Ani	<i>Jaa?</i>	

Sad	• <i>Passangehörigkeit gemacht,</i>	<i>weill ääh • ((atmet ein)) in Rathaus</i>
Sad [eng]	membership,	because eeh • ((takes a breath)) at the townhall
Ani	<i>Jaa?</i>	

[00:49]

[00:52]

Sad	<i>ham die mir nisch/ <u>kei</u> ne Unbefristetn gegebm.</i>	• <i>Weil isch immer voll</i>
Sad [eng]	they didn't give me/ no u nlimited residence.	• Because I always really
Ani		•• <i>Ah!</i>

[00:57]

Sad	<i>Scheiße Schule gemacht hab.</i>	••• <i>Schab jetzt</i>	<i>s alles in Schule Scheiße gemacht, ısch</i>
Sad [eng]	messed up school.	••• Now I really	messed up everything at school, ıI
Ani		•• Jaa?	

(11) describes the scene of how Sadık went back to the foreigners' authority to present his new certificate of naturalization. This passage details the source of some background information about the process, discourse-connected by means of the subordinator *weil* 'because' (after 00:10:11).

(11) LiLaC_AEBS16_Sadık_Part2, 00:10:11: *Dann dann hab ich • guut überlegt*

[10:05]

Sad	<i>Diese Frau sacht mir ja:</i>	<i>Sie warn in Schule Scheiße und so, wir gehm dir kein</i>
Sad [eng]	This woman tells me, as ya know:	You were shitty at school and so on, we don't give

[10:11]

Sad	<i>Unbefristete(n).</i>	•• <i>Dann hab isch gesacht, weißte, dann hab ich • guut überlegt,</i>
Sad [eng]	you an unlimited one.	•• Then I said, ya know, then I • really well thought, thought,

Sad	<i>überlegt, überlegt.</i>	•• <i>Weeil • damals war mein Schwägerin auch Deutsche.</i>
Sad [eng]	thought.	•• Because • at that time, my sister-in-law also was a German.

[10:18]

Sad	<i>Hatte mir schon mal gesacht:</i>	<i>Wennde achtzehn bist, wennde alleine alleine gehn willst,</i>
Sad [eng]	She had once told me:	When you're eighteen, if you wanna go on your own, you

Sad	<i>dann kannste ıat machn.</i>	<i>Wennde jetz unter achtzehn bist, musste da(nn) mit</i>
Sad [eng]	can do that.	Now when you're under eighteen, ya have to do it
Ani		•• <i>Jaa'.</i>

[10:24]

Sad	<i>Familie machn.</i>	•• <i>Und isch war achtzehn.</i>	<i>Unnan hab isch guut</i>
Sad [eng]	with your family.	•• And I was eighteen.	And then I really well
Ani		<i>Hmhm hmhm</i>	

5. Vulnerable morphosyntax: Modification and complementation

Cross-linguistically, Benmamoun, Montrul, and Polinsky (2013a) report 'incomplete acquisition' in terms of morphological errors or avoidances, pertaining, among other things, to inflectional morphology and the syntax-discourse interface. They state an asymmetry towards more vulnerability in the nominal as compared to the verbal domain, with case and agreement (as relational categories) being most vulnerable cross-linguistically. These issues are related to what the present study is interested in, namely NP-internal elaboration and nonfinite subordinating morphology.

With respect to diaspora Turkish, a focus of investigation has been on subordinating morphology. Several studies suggest that its functional expansion and diversification may slow down after the onset of school age, be subject to convergence, avoidance, innovation, or be relegated to the receptive mode (e.g. Backus, 2004; Pfaff, 1993, 1994, 1999; Aarts, 1998; Herkenrath & Karakoç, 2002; Herkenrath & Karakoç, 2007; Herkenrath, 2012, 2014; Rehbein & Herkenrath, 2015; Dollnick, 2013; Onar Valk & Backus, 2013; Bayram, 2013, p. 147–151; Backus & Onar Valk, 2014; Onar Valk, 2015). Bilinguals expanding their systems during later school years have also been found, depending on support of immigrant bilingualism through the educational system and on individual initiative (Akıncı, 2006; Akıncı & Jisa, 2000, 2001; Akıncı, Keskin, & Küntay, 2006).⁷

Interfacing morphosyntax with discourse and text analysis, Schroeder (2016) links ‘conceptually oral’ versus ‘conceptually written’ (Koch & Österreicher 1994) or ‘orate’ versus ‘literate’ registers (Maas, 2008, 2010) of Turkish to finite versus non-finite options of clause linking. The more formal register is structurally characterized by denser information packaging (Schroeder, 2016, p. 83, referring to Maas, 2008), and among the different types of subordination, complementation, next to relativization, is most relevant for information packaging.

Schellhardt and Schroeder (2015) operationalize these parameters for nominal phrases. Next to the general increase in complexity, they also find that, in the advanced classes of secondary school, pupils may loosen their commitment to literate standards in favor of less dense information packaging: a certain license that comes with mastery in their German text production. In their Turkish texts, the pupils adhere to norms of literate registers in a stricter way: an indicator of a lesser sovereignty in the less well mastered, less supported language. A first impression of the present data was that the Turkish version looked more condensed, which one might interpret as more formal or literate.

The following section breaks down the discourse-level tension between ‘detailing’ and ‘evaluation’ on one side and ‘condensation’ on the other side, to the mentioned grammatical categories that have been used in comparing Turkish-German bilingual narratives: (1) complexity of noun phrases and (2) nonfinite clause complementation.

7. Kerslake (2007) reminds us that Turkish has used alternatives to nonfinite subordination for centuries.

5.1 Noun modification: Details squeezed into an NP

This section operationalizes degrees of complexity in modified noun phrases on the basis of Schellhardt & Schroeder (2015), in the following terms: (i) non-modified NPs, (ii) non-propositionally modified NPs, (iii) non-modified propositional NPs, (iv) propositionally modified NPs, and (v) multiply modified NPs. Non-modified NPs, the most frequent type throughout secondary school (Schellhardt & Schroeder, 2015), can be observed in (12) and (13) in the German and Turkish version of Sadık's tale, respectively:

- (12) LiLaC_AEBS16_Sadık_Part2, 00:00:57: *Schab jetzt s alles in Schule Scheiße gemacht*

[00:57]

Sad	<i>Scheiße Schule gemacht hab.</i>	••• <i>Schab jetzt</i>	<i>s alles in Schule Scheiße gemacht, √isch</i>
Sad [eng]	messed up school.	••• Now I really	messed up everything at school, !I
Ani		••• Jaa?	

Sad	<i>hab immer geschwänzt.</i>	<i>Isch war</i>	•• <i>Schule und so. √((atmet ein))</i>	•• <i>Dann</i>
Sad [eng]	always stayed away from classes.	I was	•• school and so on. √((takes a breath))	•• Then I

[01:04]

Sad	<i>war isch in Rathaus, wollt ich Unbefristeten habn,</i>	• <i>dann ham die gesagt: Jaaa, Siee</i>	•
Sad [eng]	was at the townhall, wanted an unlimited one,	• then they said: Eh, you	• were so

Sad	<i>warn in Schule so scheiße, dann gebn wir sie dir/ äh' dann gebn sie/ gebn wir dir</i>
Sad [eng]	shitty at school, then we give you/ eh, then they give/ we don't give you

[01:13]

Sad	<i>keine • Unbefristeten.</i>	•• <i>Habbisch _gesacht: Hörn Se mal.</i>	••• <i>Wolln Se mich jetzt</i>
Sad [eng]	an • unlimited one.	•• I said: Listen.	••• Do you want to annoy

- (13) LiLaC_AEBS16_Sadık_Part2, 00:19:10: *Size o Rathaus'u anlatiim bir de Türkçe*

[19:10]

[19:13]

Sad	<i>Ama •• oo... ((1.5s))</i>	<i>Size o Rathaus'u anlatiim bir de Türkçe.</i>
Sad [eng]	But •• that... ((1.5s))	Lemme tell you that townhall thing once more in Turkish.
Ani		<i>Hññm'</i>

[19:15]

[19:17]

Sad	<i>Anlatiim, de me</i>	<i>√Tamam.</i>	•• <i>Şimdi ben Rathaus'(d)a terminim vardı.</i>
Sad [eng]		<i>√Okay.</i>	•• Now I had an appointment at the townhall.
Ani	••• <i>Olsun.</i>	<i>√Tamam.</i>	
Ani [eng]	••• Okay.	<i>√Okay.</i>	

[19:20]

Sad	<i>Eeh, karımı getirecektim.</i>	<i>Türkiye' den evliydim.</i>	<i>On sekiz</i>
Sad [eng]	Eeh, I was going to bring my wife.	was married from Turkey.	I was eighteen
Ani	<i>Hm''</i>		

(ii) Non-propositionally modified NPs are noun phrases modified by an adjective, a genitive possessor or something similar (Schellhardt & Schroeder 2015). This type, too, is relatively frequent in the data; (14), in German, and (15), in Turkish, are illustrations:

(14) LiLaC_AEBS16_Sadık_Part2, 00:01:53: *Sie brauchn drei Monate von Schulabschluss*

[01:47]

Sad	••• Bin isch nach ••• Ordnungsamt gegangn.	Hab isch gesacht: Isch hab/ isch will
Sad [eng]	••• I went to the ••• public order office.	I said: I have/ I want to ((takes a breath))

Sad	•• deutsche Staatsangehörigkeit ((atmet ein)) anmelden.	Ham sie gesacht: Okay, kein
Sad [eng]	register for •• German citizenship.	They said: Okay, no big deal.

[01:53]

Sad	Thema. ••• Ham sie gesacht: Ja, Sie brauchn drei/ • drei Monate von Schulabschluss.
Sad [eng]	••• They said: Well, you need three/ • three months before your school certificate.

(15) LiLaC_AEBS16_Sadık_Part2, 00:26:01: *Koca Alman ettiler beni*

[26:01]

Sad	De me? Ağlancak konu ya!	••• Bana bir sırf
Sad [eng]	Isn't it? It's a cryable topic, ya know.	••• They only ••• in order not to give me that
Ani		Ağlamamak için.
Ani [eng]		In order not to cry.

[26:07]

Sad	unbefristet vermeme için koca Alman ettiler beni, Alman oldum.	Alman. ••• Şimdi
Sad [eng]	unlimited, they even made me a German, I became a German.	A German. ••• Now

Of real interest for formal registers are the types (iii), (iv), and (v). I refer to (iii) 'non-modified propositional NPs' in connection with verb-based nominalizations that work like modifying clauses, however, without there being a modified noun; the clause itself is the noun. These constructions, which are specific to Turkish, have no close correspondence in German; the closest would be embedded finite *wh*-constructions of a certain type. Participial propositional NPs appear twice in the data; see *Sorun, söyliim size istediğinizi* 'Ask, I'll tell you what you want' in (2) above, and (16):

(16) LiLaC_AEBS16_Sadık_Part2, 00:24:12: *Diyeceklerim bu kadar*

[24:12*]

[24:14]

[24:17]

Sad	((gülür)) Ya şerefsizler, yaha!	Vahaaa!	Bu
Sad [eng]	German. (laughs) You dishonorable ones, hey!	Hey!	This
Ani	(laughs)	(laughs)	(laughs)

[24:20]

Sad	kadar. Diyeceklerim bu kadar.	((gülür))	Ya_Allalaaah! •• ((gülür))
Sad [eng]	much. This is all I'm going to say.	((laughs))	Yeah_by Jove!
Ani		Güzel anlattınız.	↪((gülür)) ((gülür))
Ani [eng]		Nicely told.	↪((laughs)) ((laughs))

(iv) Propositionally modified NPs, relative clauses, are absent from Sadık's German version of the tale. As participial constructions, however, they do quite abundantly feature in the Turkish version; see (17) and (18):

(17) LiLaC_AEBS16_Sadık_Part2, 00:23:54: *Babası Almanlar olan oğlum Türk olmuş*

[23:37]

Sad	<i>Bunu hep çocuklarıma da anlatacam.</i>	<i>Çünkü hep...</i>	•• <i>Doğu Erkan</i>
Sad [eng]	This one I'll always tell my children, too.	Because always...	•• Do you know Doğu
Ani	<i>Unutulur mu (böyle birşey)?</i>	<i>Evet!</i>	
Ani [eng]	Does one forget (something like that)?	Yes!	

[23:40]

Sad	<i>biliyorsunuz? Alman doğuyor</i>	<i>on sekizde karar verecekler,</i>	<i>Türk oder • D/ Al</i>
Sad [eng]	Erkan?	He's born a German, at eighteen they have to decide,	To become a

[23:43]

[23:46]

Sad	<i>man olması için.</i>	• <i>Hee. Ne can()la, siktir et oğlum, böyle</i>
Sad [eng]	Turk or • a D/ German.	• Yeah. What living (), fuck you guy, because of
Ani	<i>Ha, onlar yine...</i>	
Ani [eng]	Right, even though, they...	

Sad	<i>şerefsiz karılar yüzünden Türk ol(d)ucam.</i>	••• <i>Vallah, arka()cam. ◡((güler))</i>
Sad [eng]	such dishonorable wives I will be a Turk.	••• By Jove, behind () I'll ()
Ani		((loudly laughs))

[23:54]

Sad	<i>He, •• (), oğlum • Türk olmuş.</i>	<i>Babası Almanlar olan oğlum</i>
Sad [eng]	◡((laughs)) Yeah, •• (), by son • has become a Turk.	My son, whose father is a
Ani	((laughs))	

[23:56]

Sad	<i>Türk olmuş, ne olacak.</i>	<i>De me? •• ((güler)) O karyı da gör(dü mü)</i>
Sad [eng]	German, has become a Turk, so what.	Right? •• ((laughs)) And as soon as he sees tha
Ani		((laughs)) ((laughs))
Sad [k]		<i>loud, laughing</i>

(18) LiLaC_AEBS16_Sadık_Part2, 00: 26:01: *Ağlanacak konu*

[25:52]

Sad	<i>Yaya, hikâyet çok güzel, de me?</i>	<i>Hani sen güliyorsun,</i>
Sad [eng]	Oh well, my story is really great, isn't it?	I mean, you laugh, ◡ if I
Ani	((güler))	<i>Ya, gerçekten güzel.</i>
Ani [eng]	((laughs))	Yeah, it's really great.

[25:57]

Sad	<i>◡bazısına anlatsam ağlar da.</i>	•• ((güler)) ((güler))
Sad [eng]	tell it to some people, they'll cry.	•• ((laughs))
Ani		((güler)) ◡ <i>Slında/ aslında da öyle yani.</i>
Ani [eng]		((laughs)) ◡Actually/ actually, it's like that, I mean.

[26:01]

Sad	<i>De me? Ağlanacak konu ya!</i>	••• <i>Bana bir sırf unbefristet vermemek için</i>
Sad [eng]	Isn't it? It's a cryable topic, ya know.	••• They only ••• in order not to give me that
Ani		<i>Ağlamamak için.</i>
Ani [eng]		In order not to cry.

(v) Multiply modified NPs occur in both versions of the story; while more frequent in German, they are more diverse in the Turkish version. *Ganz großes deutsche Pass* 'a really big German passport' (19) is a German example; (20)–(24) are Turkish. (24) is a discontinuous construction: the NP is interrupted by the predicate and resumed afterwards.

(19) LiLaC_AEBS16_Sadık_Part2, 00:04:29: *Gebn dir ganz großes deutsche Pass*

[04:25]

Sad	<i>auch selber lachen.</i>	•• (Stell ma so un da) Scheiß/ nur scheiße Unbefristete ham
Sad [eng]	myself.	•• (Imagine like that and there) crap/ only a shitty unlimited
Ani	<i>Ja'.</i>	

[04:29]

Sad	<i>die mir nich gegeh.</i>	((atmet ein)) <i>Gebn dir ganz großes deutsche Pass.</i>
Sad [eng]	one they didn't give me.	((takes a breath)) Then they give you a really big German passport.

(20) LiLaC_AEBS16_Sadık_Part2, 00:20:28: *Alman olduğuma dair • bir tane Urkunde verdi*

[20:58]

[21:01]

Sad	<i>para verdim. Damit isch den...</i>	<i>Eeh yaanii... Ben bu Alman pasını almak</i>
Sad [eng]	and fifty-five euros. In order for me to...	Eeh, I mean... In order to get this German

Sad	<i>için •• iki yüz elli beş euro ücret ödedim.</i>	••• <i>Onu almak için.</i>	<i>Tamam,</i>
Sad [eng]	passport, •• I paid two hundred and fifty-five euros.	••• In order to get that.	Okay, they

[21:07]

Sad	<i>dediler. ••• Bana •• bunlar</i>	• <i>Alman olduğuma dair • bir tane Urkunde verdi.</i>
Sad [eng]	said. •• These people gave ••• me • a document about the fact that I'm a • German.	

[21:12]

Sad	<i>Ben de o Urkundele • ayın yirmisinde</i>	•• <i>Rathaus'a gittim.</i>
Sad [eng]	And with that document • on the twentieth of the month, I went to the townhall.	
Ani	<i>Hmh̄m̄'</i>	

(21) LiLaC_AEBS16_Sadık_Part2, 00:19:30: *Ben • Rathaus'a gittim*

[19:30]

Sad		((1.3s)) <i>Ben • Rathaus'a gittim.</i>	•• <i>Karıya dedim kii/ eeh ben,</i>
Sad [eng]	unlimited one.	((1.3s)) I • went to the townhall. •• I told the wife/ eeh, I said, I	
Ani	<i>Hmh̄m̄'</i>		

Sad	<i>dedim, karımı getircem.</i>	• <i>Benden • üç aylık para (kağıdı) istedi.</i>	•• <i>Onu getirdim.</i>
Sad [eng]	will bring my wife.	• S/he • wanted a salary receipt for three months. •• I brought that.	

(22) LiLaC_AEBS16_Sadık_Part2, 00: 21:24: *O elimdeki dosyayı attım suratına*

[21:20]

[21:24]

Sad	<i>O karıda gircem.</i>	<i>Dedi: Tamam, okay, gir.</i>	<i>((1.4s)) O kariya girdim.</i>
Sad [eng]	I will go to that wife's office.	S/he said: Right, okay, get in.	((1.4s)) I went into that

Sad	<i>Onun suratına</i>	• o • <i>elimdeki dosyayı attım suratına.</i>
Sad [eng]	wife's office. Into that one's face	• that • file in my hands I threw it into her face.

(23) LiLaC_AEBS16_Sadık_Part2, 00:22:51: *Onun o gıcık bakişını*

[22:51]

Sad	• • • <i>kariyi görmediğim için.</i>	<i>Onun suratını gözümün önünden</i>
Sad [eng]	because I don't see • that • • • wife.	I can't get that face of hers out of my head.
Ani		<i>Hm''</i>

[22:56]

Sad	<i>silemiyorum. ((nefes alır)) Onun o gıcık bakişını.</i>	• • O <i>yüzden</i> • • çok <i>memnunum.</i>
Sad [eng]	((takes a breath)) That stinky look of hers.	• • For that reason • • • I'm very
Sad [k]	<i>with a trace of laughter in his voice</i>	

(24) LiLaC_AEBS16_Sadık_Part2, 00:24:31: *Alman pasım var benim şimdi*

[24:29]

[24:31]

Sad	<i>Düşün, bana bir unbefristet</i>	<i>vermiyorlar ya. Deutsche/ Al</i>
Sad [eng]	hey. Think about it, they don't give me an unlimited one, ya know.	Deutsche/ a
Ani	<i>I yaa...</i>	Ya.

[24:33]

Sad	<i>man pasım var benim şimdi.</i>	• Ben (bir yere) <i>gittim Bundesrepublik Deutschland</i>
Sad [eng]	German passport is what I have now.	• I went to (a place), Federal Republic of Germany
Ani	<i>Ya.</i>	

Table 1 quantifies these findings for the two versions of the tale. The proportion of modified NPs among all the NPs is slightly higher in the Turkish version, and even slightly higher in both languages than in the written data in Schellhardt & Schroeder (2015), including the twelfth-year pupils. In the Turkish version, Sadık uses seven propositionally modified NPs; this is a proportion of 7.8%, lower than in the written Turkish data of the advanced pupils, but distinctly higher than in their oral Turkish data. Multiply modified NPs, while more frequent in the German tale, look more complex in the Turkish version. In terms of discourse structure, in these complexly condensed modified noun phrases, the plot advancement is faster, more straightforward, more intense, and so is the verbalization of emotional evaluation.

Table 1. Types of NP modification, German and Turkish, quantification

Type	Construction	Findings German	Findings Turkish
(i) non-modified NPs	(DEI/ART/NEG.ART/QUA) NP(.COMPD)	136 (71%)	89 (67%)
(ii) non-propositionally modified NPs	(ART/DEI) ADJ NP	24	5
	GEN NP/ (GEN) NP-POSS	13	21
	NP with ADV	9	4
	<i>wh</i> NP	1	1
(iii) non-modified propositional NPs	PAR-CASE/PL	–	2
(iv) propositionally modified NPs	NP REL.CLAUSE	–	–
	PAR.CLAUSE NP	–	6
(v) multiply modified NPs	(ART/DEI) ADV/ADJ NP (ADV)	5	–
	DEI NP-POSS-LOC-ADJ NP	–	1
	GEN DEI ADJ NP	–	1
	GEN NP ADV	2	–
	PAR.CLAUSE NP PP QUA NP	–	1
	100%	190	131

5.2 Complement constructions: *-ma* versus *-DIK*, and case

The morphosyntactic operations of subordination in Turkish make for an interesting interface between verbal and nominal morphosyntax (Johanson, 1975, 1990, 1990, 1996, 2010, 2013; Kornfilt, 1997, p. 15, 45, 46; Kornfilt, 2006, 2007; Borsley & Kornfilt, 2000; Kornfilt & Whitman, 2012a, b; Karakoç & Herkenrath, 2016; Herkenrath & Karakoç, 2017). Nonfinite hypotaxis is the most condensed type of structure before clausality completely transits into nominality. In the bilingual constellation at hand, these structures are specific to Turkish. German has finite hypotactic complement clauses, and it has non-clausal nominalization, but it has nothing in-between.

There are two reasons for choosing complement clauses as a testing case for the present study: (1) their function for the verbal processing of cognitive and emotional evaluation, and (2) their condensating role in information packaging. Rehbein (2007b) distinguishes between a ‘presentative’ versus a ‘descriptive’ realisation of an illocution. Content verbalized in a subordinate construction is ‘descriptively realised’, allowing a speaker to verbalize a reflective distance towards what *s/he* thinks, perceives, or feels. Parts of an illocution can thus be distributed between two predicates, within one utterance.

The micro-functionality of complementizers typologically differs between German, which relies on deixis, *wh*, and lexical material, and Turkish, which

uses nominalization, possession, case, and sometimes postpositions. Other cross-linguistic challenges are the distinction between factive and non-factive/ actional illocution (*-DIK* versus *-mA*, Kornfilt, 1997, p. 51) and inherent cases. Regarding the first point, Benmamoun, Montrul, and Polinsky (2013a, p. 162f, 154, 167) discuss the vulnerability of the subjunctive in heritage Spanish. For *-mA*, Göksel and Kerslake (2005, p. 363–366) mention ‘description’, ‘evaluation’ and ‘emotional attitude’, next to communication about states or events that have not yet become reality but can be imagined, desired or caused. Johanson (2013, p. 82) points to the neutrality of *-mA* with regard to any knowledge about an actual event; *-mA* just refers ‘to the action, leaving the further interpretation open’.

Regarding case, Benmamoun, Montrul, and Polinsky (2013a, p. 151f, 154) discuss inherent case as a potentially vulnerable area in heritage language development. The main challenge in this connection consists in the dependency of the case not simply on the syntactic structure, but also on lexical features of the individual verb. In Turkish clause complementation, which works on the basis of verb nominalization, case is the element that integrates the subordinate clause into the superordinate structure. The basic options of structural case are nominative for subject complement clauses, accusative for direct object complement clauses, and dative for indirect object complement clauses. The remaining cases can be used for adverbial subordination, however, dative and ablative can be lexically assigned to complement clauses as well. Studies on the ENDFAS/SKOBI corpus of monolingual and bilingual child Turkish (Rehbein, 2009; Rehbein, Herkenrath, & Karakoç, 2009; Herkenrath & Rehbein, 2012; Herkenrath, 2014) suggest an acquisition of these structures mainly after childhood, and vulnerability in diaspora child Turkish. *-mA* is distinctly less frequent than *-DIK*, and particularly dative-marked constructions are rare overall.

In the German version of Sadık’s tale, there are roughly half a dozen of complement clauses. In German, the choice of complementizer in complement clauses basically is one between deixis and *wh*, depending on the assertivity versus interrogativity of the proposition; see (25):

(25) LiLaC_AEBS16_Sadık_Part2, 00:09:11: *Isch bin ganz froh*

		[09:13]	[09:15]	
Sad	<i>Isch bin ganz froh.</i>	<i>Wirklich ganz froh.</i>	<i>Dass ich ein Deutscher bin.</i>	•• <i>Sch mein</i>
Sad [eng]	I’m quite glad.	Really quite glad.	That I’m a German.	•• I don’t
Ani		•• <i>Ja’.</i>		
		[09:17*]	[09:19*]	
Sad	<i>nisch Deutscher.</i>	<i>Das mein • Pass Deutscher is.</i>	•• <i>Selbs bin isch Türke.</i>	•• <i>Oder sch</i>
Sad [eng]	mean a German.	That my passport is a German.	•• Myself I’m a Turk.	•• Or I’m
Ani				<i>Hmhñ’</i>

[09:22]

[09:25]

Sad	<i>bin • froh, dass isch ein Türke (bin).</i>	<i>Nur wegen die Scheiße</i>	<i>Frau da.</i>
Sad [eng]	• glad to be a Turk.	Just because of that shitty woman there.	
Ani		<i>Hmhm</i>	<i>((ckuckles))</i>

[09:28]

Sad		<i>((schmalzt)) • • Isch weiß nisch ma, was isch dafür • noch</i>
Sad [eng]		<i>((smacks)) • • I don't even know what • to say about this.</i>
Ani	• • • Ja'	

[09:32]

[09:35]

Sad	<i>zu sagen hab. • • Also, du hast dat auch gehört, du lachst auch nur darüber.</i>
Sad [eng]	• • Well, you also heard that, you, too, only laugh about it.
Ani	<i>((laughs)) ((laughs))</i>

The Turkish data also contain finite complement clause constructions, mainly where rendering dialogue. In (26), Sadık uses *ki*-constructions and adjacency constructions, with the verbum dicendi *de-* as a matrix verb:

(26) LiLaC_AEBS16_Sadık_Part2, 00:19:30: *Karıya dedim ki*

[19:30]

Sad		<i>((1.3s)) Ben • Rathaus'a gittim. • • Karıya dedim kii/ eeh ben,</i>
Sad [eng]	unlimited one.	<i>((1.3s)) I • went to the townhall. • • I told the wife/ eeh, I said, I</i>
Ani		<i>Hmhm</i>

Sad	<i>dedim, karımı getircem. • Benden • üç aylık para (kağıdı) istedi. • • Onu getirdim.</i>
Sad [eng]	will bring my wife. • S/he • wanted a salary receipt for three months. • • I brought that.

[19:36]

Sad	• • • Ev/ • • • evim • eh • evim/	<i>eeh, mietvertrağımı istedi, onu getirdim.</i>
Sad [eng]	• • • Fla/ • • • my flat • eh • my flat/	<i>eeh, she wanted my rental contract, I brought that.</i>

[19:42]

Sad	• • • Bana dedi ki: Onlar yetersiz, dedi.	• • • Eeh, onlar yetersiz deyince
Sad [eng]	• • • She told me: These are insufficient, she said.	• • • Eeh, when they said that it was

Sad	<i>dedim ki: Ya benim unbefristetem de yok.</i>	<i>Bana unbefristet lazım,</i>
Sad [eng]	insufficient, I said: Well, I don't have an unlimited one either.	I need unlimited, I said.

[19:49]

[19:52]

Sad	<i>dedim. Biz de, sana unbefristet vermeyiz.</i>	<i>Niye? dedim. • • Yaa, siz, dedi,</i>
Sad [eng]	And we won't give you unlimited.	Why? I said. • • Yeah, you, she said, at
Ani		<i>Hm</i>

Sad *zamanında okula gitmemişsiniz, okul(u) hep schwänzen yapmışsınız, dedi. • • • Dedim,*
 Sad [eng] the time, you didn't go to school, you used to skip school, she said. • • • I said, oh

[20:01]

Sad *allalla, dedim, şimdi bu • Rathausdan benim okulun ne alakası var? dedim. Okula*
 Sad [eng] my God, I said, now what has my school to do with this • townhall? I said. When I went

Sad *gittiğimde ben on altı yaşındaydım, şimdi on sekiz yaşındayım, dedim.*
 Sad [eng] to school, I was sixteen years old, now I'm eighteen years old, I said.
 Ani *Ga().*

Sad *Yok, dedi, siz, dedi, okula gitmemişsin, ben size unbefristet vermiyorum, dedi.*
 Sad [eng] No, she said, you, she said, didn't go to school, I won't give you unlimited, she said.

[20:09]

Sad *Bugün, dedim, ayın kaçı? dedim. Onu dedi. • Dedim, bana on*
 Sad [eng] Today, I said, which day of the month is it? I said. The tenth, she said. • I said, give my

[20:15]

Sad *gün • sonraya bir termin verin, dedim. Size gelip • bir daha konuşacağım. ((1.4s))*
 Sad [eng] an appointment for • in ten days, I said. I will get back to you and • talk again. ((1.4s))

Regarding nonfinite subordination, Sadık employs *-DIK* and *-mA* with different cases. (27) and (28) show uses of *-DIK* with accusative and dative, respectively. The accusative is governed by a verbum sentiendi *bilse* 'if she knew'. The dative is governed once by a postposition, *dair* 'about, concerning', belonging to formal register, and another time by an adjective-based predicate sentiendi: *memnunum* 'I'm satisfied':

(27) LiLaC_AEBS16_Sadık_Part2, 00:23:19: *Merkel*

[23:19]

Sad *((güler)) Merkel'e bile oy atıyom. • • • Merkel beni(m) böyle biri olduğum(u)*
 Sad [eng] ((laughs)) I even vote for Merkel. • • • If Merkel knew that I'm someone like

[23:23]

Sad *bilse belli ki b(e)na madalya takar. Merkel'e oy atıyom.*
 Sad [eng] this, she'd definitely give me a medal. I vote for Merkel.
 Ani *Hhmm'*
 Ani [k] *with suppressed laughter*

(28) LiLaC_AEBS16_Sadık_Part2, 00:22:14: *Ya, dedim, işte*

[22:05]

Sad *Hani, size böyle yapmazdım. Ya, dedim, işte.*
 Sad [eng] would do like this. You know, I wouldn't have done this to you. Well, I said, here you go.

[22:10]

Sad *Son pişmanlık hiçbirşey aramıyor, dedim. ••• Sırf, dedim... ((1.5s)) Sırf dedim:*
 Sad [eng] The last regret isn't looking for anything, I said. ••• Only, I said... ((1.5s)) Only I said:
 Ani *((laughs, 2.3s))*

[22:14]

Sad *••• En sevdiğim konu ne, biliyon mu, bu Almanca/ Alman pasını aldığıma dair?*
 Sad [eng] ••• The topic I like most, do you know, about my getting this German/ German

[22:21*]

Sad *dedim. Sizin suratınızı görmemek için, dedim. Sizin şu • pis • suratınızı*
 Sad [eng] passport? I said. In order not to see your face, I said. In order not to see that • dirty

[22:10]

Sad *görmemek için, dedim, •• bu Alman pasını aldım, dedim. Vallahi bak!*
 Sad [eng] face of yours, I said, •• I got this German passport, I said. By Jove, look!
 Ani *((side comment?))* *((laughing,))*

[22:29]

Sad *Ve •• Alman pasını aldığıma çok memnunum.*
 Sad [eng] And •• I'm very satisfied with having got a German passport.
 Ani *1.5s))* *•• Hihhññ*
 Ani [k] *suppressed laughter*

Example (29) exemplifies Sadık's use of *-mA*-constructions, in alternation with *-DIK*, all with the negative predicate *memnunum/ memnun değilim* 'I'm (not) satisfied'; for the larger picture, see Table 2 below:

(29) LiLaC_AEBS16_Sadık_Part2, 00:24:52: *Memnun değilim*

[24:39]

[24:43]

Sad *• Şerefsizler ya. Ama • pişmanlığım değilim. Asla değilim. Alman*
 Sad [eng] • Dishonorable ones, ya know. But • I don't regret. Not at all. I'm
 Ani *Evet.* *Hihhññ*

[24:47]

Sad *olduğuma... ((1.5s)) Memnun değilim. Alman olduğuma • memnun değilim _ama*
 Sad [eng] ((1.5s)) not satisfied about being a German. I'm • not satisfied about being a German,

[24:52]

Sad ((1.7s)) *oturum olmadığına memnunuz.* ••• *Pasaportumu*
 Sad [eng] _but ((1.7s)) I'm satisfied about there not being a residence permit. ••• I'm not satisfied

Sad *değiştirmeme memnun değilim.* _((gülür)) *İki bin on sekize • kadar oho, ben*
 Sad [eng] about having changed my passport. _((laughs)) Until two thousand and eighteen oho,

Table 2. Matrix elements of complement clauses, Turkish, overview

Type	Matrix element	Findings
-DIK-POSS-ACC	<i>(fenen) almazdım</i> '(?)' <i>bilse</i> 'if she knew'	00:21:58 00:23:19
-DIK-POSS-DAT	<i>dair</i> 'about, saying' <i>memnunuz</i> 'I'm satisfied' <i>memnun değilim</i> 'I'm not satisfied' <i>pişmanlığım değilim</i> 'I don't regret'	00:21:07, 00:22:14 00:22:24, 00:24:52, 00:26:24 00:24:47 00:24:39
-mA-POSS	<i>çok güzel</i> 'it's very nice'	00:25:24
-mA-DAT	<i>düşünüyorum</i> 'I'm thinking'	00:23:08
-mA-POSS-DAT	<i>gerek yok</i> 'it's not necessary' <i>memnun değilim</i> 'I'm not satisfied'	00:22:44 00:24:52
-mA-POSS için	<i>karar verecekler</i> 'they have to decide'	00:23:40

6. Conclusion and outlook

This has been an attempt to relate a language-biographical with a discourse- structural and a morphosyntactic take on a narrative recorded in two versions, with an eye on register, information packaging, and complexity, aiming at documentation of the adult stage of early successive-bilingual development. As has been seen in both versions, complex language and condensation are not the hallmark of formal or literate language alone. While repetition, interactional reconstruction, restaged dialogues, and cognitive-emotional evaluation are part of informal storytelling, a dense information packaging has its functions here as well, where it can be used to speed up plot development or to densify emotional expression. What can be retained is a tension between loosely packed information, intermingled with digressions and evaluations, all part and parcel of a functional autobiographical narrative, and techniques of condensation, which make for greater morphosyntactic complexity if not formality.

At the morphosyntactic level, the Turkish version contains a number of non-finite complement clauses, among them some forms that have been considered

rare and vulnerable in diaspora Turkish. These forms, which bring about a condensation of illocutionary differentiation, are particularly complex with regard to morpho-semantic differentiations such as illocutionary semantics of nominalizers and inherent case. By contrast, the German version just contains some standard connectors here and there.

Sadık's NP modifications likewise point towards more density in Turkish than in German. His Turkish data contain participially formed propositional NPs, non-existent in German, propositionally modified NPs, absent in his German version of the tale, as well as some multiply modified NPs in Turkish that are more complex than in the German version, carrying a large amount of condensed detail.

Interestingly, however, the Turkish passage immediately after the transition from German, which made for the formal impression that motivated the investigation in the first place, does not contain many of these forms. The impression may therefore be due to additional phenomena yet to be more deeply investigated: an effect of density due to short paratactic constructions in densely packed linear succession, separation between description and evaluation, and possibly also acoustic phenomena pertaining to tone, body tension, speed etc., to be considered in future study.

An open question remains with regard to the presence of formal registers and means of expression in Sadık's everyday neighborhood life, and the circumstances that seem to have led to his exclusion from German formal education, turning his Turkish linguistic heritage into some kind of refuge. Sadık's tale provides some sociolinguistic details about these matters, and the way in which these are presented in some passages suggests a distancing from the events, taking the form of loops and digressions. However, since the tale is told in several takes, one can also find passages in which a high level of density is realized, with quickly advancing plot and straightforward emotional evaluation.

HIAT conventions

Hm̄	level tone on aspirated nasal	...	breaking off of an utterance
Hm̄́	rising tone	•	pause of short duration
Hm̄̀	falling tone	•••	pause of long duration (< 1s)
Hm̄́̀	falling-rising tone	((2.5s))	pause longer than a second
Hm̄̀́	rising-falling tone	((güler))	tier-internal comment
.	utterance-final sign after	()	incomprehensible (iconic)
<u>accentuation</u>	an interjection	[comment
/	repair		

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Contemporary urban Turkey-Turkish in the German-Turkish classroom

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Drawing on a larger linguistic ethnographic project (Erduyan, 2019), this chapter focuses on the incorporation of urban, Turkey-Turkish speech style into the Turkish heritage language classroom discourse in the context of Germany. Adopting a microethnographic framework through scalar lenses, the analyses center on naturally occurring word search sessions in two different Turkish classes. The foci of analyses are on two adjectives that have gone through semantic widening in Turkey-Turkish in recent years (*komik*, *arızalı*) and are incorporated into teacher-led classroom discussions. Findings demonstrate that the newly attributed meanings of these adjectives in context are not equally transparent to the teachers and students alike; and the Turkish-German transnational scale that gets constructed in a diversity of ways across the students and the teachers seems to play a role in this difference.

Keywords: semantic widening, Turkish discourse, urban linguistic repertoires, scales

1. Introduction

Linguistic research on Turkish as an immigrant language in Europe has predominantly focused on the phonological, morphological, syntactic, and lexical levels of analyses, while pragmatic and discursive dimensions have received relatively less attention (Backus & Yağmur, 2017) – quite similar to the situation in Turkish L1 acquisition research, which is marked by “[t]he tendency to decontextualize textual content or linguistic forms from discursive interactions” (Küntay & Slobin, 2002, p. 6). Meanwhile, the pragmatic and discursive analyses have been employed within the interpretive frameworks of related disciplinary domains such as interactional sociolinguistics, and focused on issues including conversational style or identity construction in multilingual discourse in which Turkish takes one part (Auer, 2008;

Hinnenkamp, 2003; Keim, 2002; Kern, 2015). Against this background, exclusive focus on Turkish as an immigrant language discourse has come to be adopted within linguistic ethnographic paradigms, (e.g. Erduyan, 2014, 2020; forthcoming; Lytra, 2011). While outside the scope of mainstream Turkish linguistic research, this body of work aligns with the larger framework of epistemological and ontological expansion in the fields of bi-/multilingualism and Second Language Acquisition (SLA) in recent years (e.g. Atkinson, 2011; Block, 2003; Douglas Fir Group, 2016; Firth & Wagner, 1997, 2007; Heller, 2007; May, 2014; Ortega, 2012, 2013). Research in this framework adopts constructionist epistemological orientations and takes post-structuralist theoretical perspectives that question the assumptions of “stable truth and stable structure of the linguistic sign” (Mc Namara, 2012, p. 377), while also assuming non-essentialist ontologies in approaching language, i.e. rather than conceiving of language as an object, this body of work sees language as a process, “an ad hoc, local, emergent, social accomplishment” (Ortega, 2018, p. 70).

As part of a larger linguistic ethnographic project (Erduyan, 2019), the present paper aligns with the abovementioned perspective in analyzing the interactional discourse in a Turkish classroom at a *Gymnasium* type of high school in Berlin. The focus of analysis is on the use of contemporary urban Turkey-Turkish lexical elements that have been through semantic widening in present day Turkish as spoken in Turkey, namely *komik* and *arızalı* – both adjectives. In approaching the use of these adjectives in a German-Turkish classroom, the paper adopts a scalar perspective (Maloney & De Costa, 2017) and conceptualizes the use of these adjectives as a matter of speakers’ situating of themselves within the transnational scale. Below, I present a brief review of literature on Turkish as spoken in Europe through a focus on interactional discourse, and then continue with the analyses and discussion.

2. Literature review

2.1 Turkish in Europe through interactional discourse lenses

Research in Turkish as an immigrant language in Europe that takes naturalistic interaction at its center has focused on various contexts and language constellations (see Lytra & Jørgensen, 2008). Some of these studies have analyzed Turkish as part of multilingual repertoires and employed ethnographic perspectives mostly through investigating daily interactions. These studies have focused on issues such as style and identity construction through microethnographic analyses (e.g. Auer & Dirim, 2003; Kallmeyer & Keim, 2003). Keim (2002), for instance, demonstrated how young Turkish women with immigrant background in urban Mannheim index

tough woman identities through the use of German-Turkish mixing as the default, “we” code; German variety learned at school that they use with adults and teachers; Mannheim Turkish and Turkey-Turkish; a simplified German variety spoken in mixed groups, *Stadtteilsprache*; forms of Mannheim dialect; and forms of *Gastarbeiterdeutsch* to caricature and ridicule (for example the asocial Turk). Analyzing the social meaning of interaction in this way was further adopted in Auer & Dirim (2003), Dirim & Auer (2004), and Dirim & Hieronymus (2003) in their focus on adolescents of various ethnic backgrounds based in Hamburg. In this line of research, Turkish has been shown to be a marker of group identity among non-Turks as well, serving as an “entry ticket” to gain access to larger social networks as a symbolization of their cultural identity as ‘non-Germans’ (Dirim & Hieronymus, 2003, p. 228).

Further in the context of the German-Turkish interface, Hinnenkamp (2003, 2008) analyzes German-Turkish adolescents’ multilingual interactions across various environments including the virtual, and focuses on the ways different “voices in action” are blended. This *Gemischt sprechen*, as Hinnenkamp (2003) names it, “creates new compositions, hybrid forms and fills up a semantic room that was hitherto unoccupied and undefined” (p. 35). Reactions as such are also an expression of “second-order hybridization,” a turning upside down of the parent generation’s inarticulateness and redesigning the We-code irrespective of the dominant society’s authorization (Hinnenkamp, 2016). The code also has an aesthetic side, Hinnenkamp (2016) writes, due to its nature of bricolage, “for the sake of vivid and artful narrations, giving authentic voices to actors and protagonists from different linguistic, cultural, ethnic, and social backgrounds,” (p. 163).

Turkish immigrants in Germany are not the only group of Turkish speakers that have been under focus in ethnographically informed interactional sociolinguistic research. Jørgensen (2003, 2008) and associates have depicted a variety of languages in the young Danish-Turkish people’s repertoires (such as standard Danish, exaggerated Sealand Danish, Turkish, English, stylized Swedish, and German) and have argued that social relations with peers play a more important role than ethnicity among Danish-Turkish bilingual adolescents’ linguistic identity practices (Jørgensen (2003, 2005). Further in this realm of research, Møller (2008) depicted in his longitudinal analysis how Danish-Turkish participants used more Turkish and less Danish in their daily lives over the course of years, suggesting the changing patterns of their interactions with the Danish society. One such case was analyzed closely in Madsen (2008), who focused on a young Danish-Turkish man and argued that plurilingual language use as portrayed above indexes both an urban, heterosexual, masculine identity and a provincial naïve identity. These studies have uncovered the link between language use among Turks with immigrant background and their positioning vis-à-vis the host society in the respective European countries.

Turkish has also been studied as a subject of heritage language instruction in Europe (e.g. Blackledge & Creese, 2009; Creese, et al., 2007; Lytra, 2011, 2013; Lytra & Baraç, 2008). Taking a critical look into the Turkish lessons in complementary schools in the U.K, Blackledge and Creese (2009) have analyzed students' contesting of heritage culture, questioning it, and approaching the heritage language without subscribing to its nationalistic undertones. Further in this framework, Lytra (2013) depicts how standard Turkish in these schools is portrayed as belonging to elite identities, i.e. those of more educated, mobile Turkish immigrants in London, as opposed to the regional and diasporic varieties in the local context of Northern London Turkish immigrant community. This perspective brings into light the diversity of identities that are embedded in Turkish as a HL, which, Lytra (2011) argues, take place "along the lines of language, social class, economic activity, educational background and achievement, religious and political affiliation" (Lytra, 2011, p. 26).

This brief overview suggests that focusing on interactional discourse has depicted a reasonable portrayal of linguistic repertoires, interactional resources, and discursive practices in the study of Turkish as spoken in Europe. Various research frameworks have been employed in these studies, such as ethnography of communication/speaking, interactional sociolinguistics, microethnography, and linguistic ethnography – in other words, "wider interpretive approaches" (Creese, 2008, p. 229) that are "poststructuralist by critiquing essentialist accounts of social life." An additional perspective within this framework might be to examine the change in discursive practices over time, i.e. against the background of six decades of migration from Turkey to Europe. Research in morphosyntactic domains have long employed the "synchronic variation-diachronic change" framework (Backus & Onar Valk, 2013; Doğruöz & Backus, 2009). These analyses can be extended to the semantic and discursive levels in order to understand, for instance, how and what forms of semantic change can be observed in present-day Turkish as spoken in Europe, and how these changes affect interactional discourse. The present paper centers on these questions and focuses on lexical items that have gained new meanings in present day Turkey-Turkish urban linguistic repertoires and that were made the actual focus of inquiry in the classroom under focus.

2.2 Contemporary urban Turkey-Turkish in interactional discourse

Due to the advancement of communication technologies, homeland mainstream media and social media are now more accessible in the diasporic contexts. In the case of Turkish immigrants in Europe, one consequence of this development seems to be the direct access to the use of most contemporary speech styles as

spoken in the homeland with their pragmatic and discursive functions retained. Contemporary urban forms of speech can be understood as the locally constructed, conveyed, and used stylistic forms that typically belong to the linguistic repertoires of individuals who live in urban areas and identify with being city-dwellers. In the context of multilingual immigrant youth speech, various terms have been suggested to define these urban forms of language, e.g. “ethnolect,” “multi-ethnolect” (Quist, 2008), “polylingual languaging” (Jørgensen, 2008), or “late modern urban youth style” (Rampton, 2006), among others. With respect to Turkish in Germany, for instance, “Kiezdeutsch” (Wiese, 2012), “Türkenslang” (Auer, 2002), or “mixed language varieties” (Hinnenkamp, 2003) have been used. What these labels have in common seem to be a focus on the urban identity of the speakers and their multilingual repertoires due to their mixed-heritage background stemming from their migration history.

Conceptualizing these forms of speech as contemporary vernaculars rather than style, Rampton (2011) contends that they must include the “stylization and a range of metapragmatic practices alongside routine speech” and the “fragmentary appropriations of other registers/ styles/languages in the environment, both in habitual and stylized speech” (p. 291). Although he draws on multilingual repertoires, Rampton’s (2011) analysis can be extended to monolingual heritage language interactions, as well. In this case, rather than fragmentary appropriations of multilingual repertoires, those of multiple registers and styles within monolingual repertoires would be the foci of analysis.

The center of analysis in this paper lies on two lexical items in use in present day Turkish colloquial as spoken in Turkey, namely *komik* and *arızalı*, which are two adjectives that have been going through a semantic widening in recent years, i.e. the process of addition of new meanings attributed to a word or expression (Hickey, 2010; Traugott & Dasher, 2001). The two adjectives under focus here have gained new meanings in urban colloquial Turkish and the analyses in this paper demonstrate how they have been the subjects of meta-analyses among students in the heritage language classroom. The linguistic ethnographic analysis will follow the details on methodology below.

3. Methodology

The study reported in this chapter derives out of a larger linguistic ethnographic project (Erduyan, 2019) that focuses on multilingual identity construction of Turkish high school students based in Berlin. Drawing on regular classroom observations and audio recordings across German, Turkish, and English classes throughout three semesters, and interviews with participants and language

teachers, the study focuses on five students of Turkish immigrant descent. The data analyzed in this paper comes from the Turkish part of the study, which consisted of classroom observations focusing on the same set of students in their 9th and 10th grade lessons. A total of 45 Turkish lessons were observed in three semesters, and these were accompanied by regular audio recordings and fieldnotes taken by the researcher.

3.1 Participants

Of the five participants involved in the study at large, the focus in this paper is on Mert in his 9th and 10th grade classroom interactions in Ms. Kaya's and Ms. Derin's Turkish lessons respectively (see also Erduyan, 2020). Mert comes from a Turkish-Kurdish family who migrated to Berlin when he was in the second grade. According to his accounts, the family moved to Berlin from Adana in aspiration for a better education for their children. Shortly after, the parents separated, and the mother returned to Turkey with her elder daughters while Mert and his father stayed in Berlin. The complex family relations and the continuing transnational business ties led the family into traveling back and forth between Berlin and Adana quite frequently. With this background, Mert has a much wider linguistic repertoire in Turkish than his German-born classmates. Not only his lexical and grammatical competence, but his range of discursive and pragmatic skills are remarkably different than the rest of his classmates.

The analyses in this paper depict Mert in his classroom interactions with the Turkish teachers. The 9th grade Turkish teacher Ms. Kaya and the 10th grade Turkish teacher Ms. Derin are both German-Turks who received their university training in Germany. Ms. Derin is Berlin-born and more than ten years younger than Ms. Kaya, who was born in Turkey to a typical first-generation migrant family.

3.2 Scalar analysis of interaction

Although mostly recognized as part of the larger agenda of sociolinguistics of globalization (e.g. Blommaert, 2007, 2015; Collins, et al., 2009), (time)scales as an analytical tool have been employed in understanding cognitive development (e.g. Lantolf & Thorne, 2006; Mac Whinney, 2005) as well as social identification processes in the classroom (Lemke, 2000; Wortham, 2006). In Wortham's (2006) analysis, timescales refer to the spatiotemporal envelopes in which any type of process happens. In the case of the classroom processes, there are multiple timescales running simultaneously, and learning and social identification take place in a combination of multiple timescales. Wortham (2003, 2006) has analyzed mainly four

different timescales in looking into classroom discourse: the *microgenetic* timescale that concerns the local unfolding of interactions in the classroom; the *mesolevel* timescale that concerns the duration of classroom- or school-based activities, such as the handling of a book chapter, or a semester; the *ontogenetic* timescale that concerns each student's individual development; and the *sociohistorical* timescale that concerns the social, historical, and cultural context outside the classroom and that spans much longer durations as in a century.

The present study is part of a larger project that focused on the unfolding of these four timescales in classroom interaction processes (Erduyan, 2019). Yet, the purpose of the study reported in this paper is to analyze the sociohistorical timescale further in the context of a Turkish heritage language classroom (see also Erduyan, forthcoming). More specifically, this paper is concerned with attending to the transnational experience of German-Turkish students in the context of the heritage language classroom discourse. To this end, and adopting Maloney and De Costa's (2017) distinction among "local-translocal-transnational scales", the study reported in this paper problematizes the transnational scale, "the imagined community of speakers globally or those of the same ethnic heritage" (p. 39). While doing so, the analyses also draw on the microgenetic timescale of interaction, and the mesolevel timescale of the classroom task at hand, two different word-search exercises that followed the conventional IRF (initiation-response-follow-up) sequence (Sinclair & Coulthard, 1975), and were recorded on two different occasions almost one year apart from each other. As would be expected of word-search sessions in class, these excerpts reflect meta-commentary on the two lexical items under focus instead of their contextualized usage in discourse.

3.3 Analysis and findings

The two lexical items under focus in the analyses below are the French-rooted Turkish adjective *komik*, and the Arabic-rooted Turkish adjective *arızalı*. The first part of each of the analytical sections below will present information on the two lexical items. As the focus of analysis is on one single word in each case, two main sources were used to locate these words in the Turkish lexicon. The first one is the most standard, oldest, official Turkish dictionary in its online version, and the second one is the most well-known, oldest, online-only, collaborative (user-based) urban dictionary. Thus, both the existence of the focal words in the official dictionary, and their prevalence as reflected in the urban dictionary form the background to the excerpts analyzed in the remaining portion of each section. The main focus of analysis is the classroom excerpts between the students and the teachers in their negotiation of the two words in the course of two different lessons.

1. “*komik*”

The online version of the Turkish Language Association (*Türk Dil Kurumu-TDK*) Dictionary¹ treats cognates with roots in Western languages in more detail in its section “Dictionary of Western-Based Vocabulary in Turkish” (*Türkçe’de Batı Kökenli Kelimeler Sözlüğü*). The cognate *komik* of French origin is used in Turkish both as a noun and an adjective. As a noun, *komik* refers to *güldürü oyuncusu* (artist, comedian). The TDK dictionary provides three sentence-long examples taken from Turkish literature (ranging in date of publication between 1897 to 2001) to contextualize the noun form. Meanwhile, the definition provided for the adjective form that is under focus in this section goes, *gülme duygusu uyandıran, güldürücü, gülinç* (evoking feeling of laughter, amusing, funny). Twenty examples are provided below this definition, and 17 of them are sentences contextualizing *komik* to describe a situation, and only 3 describing a personal quality. These three examples are taken from modernist novels:

- (1) *Komik adamsın vesselam!*
You are a funny man and that’s that! (Ali, 1940, p. 16)
- (2) *Oranın insanları çok çok komik diyor.*
He says the people over there are very very funny. (Kemal, 1978, p. 11)
- (3) *Benim şirin komik sevdiğim, ya da sevginin sevimli piri.*
My cute funny beloved, or the sweet master of love. (Füruzan, 1999, p. 165)

These examples indicate that *komik* as an adjective to describe an individual was somehow in circulation as early as in 1940 in literary texts, although this does not provide much evidence as to the use of the word in spoken Turkish. A possible answer might be given by turning to a somewhat less formal source, an online urban dictionary constructed in a crowdsourcing format. Founded by an amateur group of young people in 1999, *Ekşisözlük*² is an online collaborative urban dictionary that has had a sustained popularity in Turkey. As an open-access website, *Ekşisözlük* provides free content for readers on a daily basis, and approximately 120,000 authors produce content in a forum style format regularly. The forum is produced with one author generating a “title”, as it is called on *Ekşisözlük*, defining it within the specific format of dictionaries, and other users writing their own takes under the same title. The titles range from a single letter to names, concepts, events, and ideas, all in the form of nouns or noun phrases. A simple word search of titles containing the word *komik* yields approximately 1,000 results. The highest number of entries (more than 13,000) to date have been written under the title *çocuklarla girilen komik diyaloglar* (funny dialogues with children).

1. sozluk.gov.tr
2. eksizozluk.com

The first *Eksisözlük* entry with *komik* in the stand-alone title format used as an adjective to describe a situation is dated 2000 and provided by the user “alha.” The first entry used as an adjective to describe an individual is dated 2008 by the user “reamonn,” which goes: *her insanın kendini zannettiği olay* (the situation in which everyone thinks she/he is), employing an ironic quality. Yet, *komik* in this sense seems to have appeared in various collocations on *Eksisözlük* already at the beginning of 2000s, as in *komik olmaya çalışan kadın* (the woman who tries to be funny) (2001, by the user “cheja”). Both the official TDK and *Eksisözlük*, then, recognize this urban sense of the word *komik* that can be classified as urban colloquial than standard Turkish. Yet, this sense might not be entirely familiar to Turkish native speakers of a certain age group, or those lacking internet/media literacy. The analysis below showcases such a mismatch between the Berlin-based German-Turkish teacher, and her student, who has more access to Turkey-based linguistic resources than his teacher.

The 9th and 10th grade Turkish programs at Berlin Central High School place much emphasis on critical thinking skills. Therefore, in addition to the course book, the teachers assign students various texts of literary and non-literary genres in the course of the semester. One of these texts assigned in the 9th grade was a short story from the early Turkish Republican period. Aiming to conduct a classroom discussion of the text, Ms. Kaya³ (Ms.K) starts the lesson with a focus on the descriptions of main characters. At one point in the discussion, she wants to elicit more descriptive adjectives from the class and some students⁴ including Mert (M) contribute to the word search as the teacher writes them on the board:

Excerpt 1.

- 1 Ms.K: *başka ne demiştik*
what else did we say?
- 2 M: *şak-şakacı*
jok- joker
- 3 Ms.K: *mutlu insanın ne zaman gözlerinin içi güler (.) mutlu olduğunda güler değil mi?*
when does a happy person have sparkling eyes (.) when she is happy right?
- 4 M: *hareketli hareket- hareketli*
active act- active
- 5 Ms.K: *canlı (.) başka ne diyebiliriz ona genel olarak (.) canlı diyebiliriz ama*
lively (.) what else can we say in general terms (.) we can say lively but
- 6 H: *optimist*
optimist

3. Pseudonyms are used for all teacher and student names.

4. Only initial letters of their pseudonyms have been provided for students, including Mert.

- 7 Ms.K: *ne diyebiliriz (.) başka?*
 what else (.) can we say?
- 8 M: *kom- ondan başka komik diycektim*
fun- funny I'd say funny in addition
- 9 Ms.K: *komik demeyelim de [ona ne diyelim*
let's not call it funny [but what can we say?
- 10 A: *[espirili*
[amusing
- 11 B: *[şakacı*

[joker
- 12 C: *hayat dolu*
full of life

As one of the most engaged students in the Turkish classes, Mert volunteers to take part in the teacher's response elicitation session that unfolds within the microgenetic timescale of the lesson, and proposes three different words in lines 2 (*şakacı/joker*), 4 (*hareketli/active*), and 8 (*komik/funny*). While the first two of these words are ignored by the teacher, the third one is immediately noticed (line 9). Yet, the teacher does not accept *komik*, and wants to elicit an alternative from the class. This refusal suggests that Ms. Kaya might be missing the urban sense of the word that Mert seems to be aware of, where *komik* also refers to 'amusing' to describe a person, and refusing its pejorative function, which means 'ridiculous'.

Mert is able to retrieve this word based on his knowledge of the most contemporary forms of Turkish as spoken in Turkey. In addition to arriving in Berlin much later than his classmates, his family's strong ties with Turkey due to business leads him into having an active social life both in Berlin and in Adana, and a more diverse circle of Turkish interlocutors than the rest of the participants. His active transnational life, which requires him to participate in the urban communities in both contexts, seems to be a major source and motivation for Mert's adoption of these forms in his linguistic repertoire (see Erduyan, 2020).

On a scalar level, Mert incorporates a lexical item that belongs to a linguistic repertoire situated within the transnational scale of German-Turkish into the microgenetic scale of classroom interaction. He can comfortably do so due to the active role he plays in the Turkish lessons that he has developed within the mesolevel timescale of the Turkish classes over the course of the year. As Wortham (2003) explains, processes in different timescales must interact for social identification to take place. In the case of Mert's social identification trajectory, it is only natural that he draws on his transnational experience more than his peers in the class, as it is an indispensable part of his identity. Therefore, he incorporates linguistic elements from different repertoires located in different scales that shape his life. The teacher, meanwhile, is not entirely aware of the scalar amalgam that Mert draws

elements from. The transnational scale that she herself draws on is mostly different from Mert's. Coming from a first-generation immigrant family, she has had a different transnational experience than her students. Present day urban colloquial Turkey-Turkish forms that are more easily accessible to young people today are not part of her linguistic repertoire.

Meanwhile, Ms. Derin (Ms.D), a German-born teacher of Turkish who taught the class in the 10th grade, has a similar lack of alignment with students in terms of the scalar combinations her social identification and discourse are based on. Below is an excerpt from one of her classes that will be analyzed in detail.

2. "arızalı"

The same online TDK dictionary lists *arızalı* as an adjective derived from the Arabic-rooted noun *arıza*. As an adjective making suffix *-l(i)* "means 'having' or 'characterized by' the thing denoted by the noun to which it is attached" (Göksel & Kerslake, 2011, p. 62). While *arıza* is simply used to describe a state of an object, three different definitions that are given for the adjective *arızalı* are as follows: impaired, dysfunctional, disordered (of a tool, etc.); uneven (as in an area); incomplete. The more colloquial, urban sense that *arıza* and *arızalı* are used, which refers to a person who creates nuisance for no reason, does not appear in the TDK dictionary.

On Ekşisözlük, *arıza* and *arızalı* are found as separate titles in their stand-alone form, but there are also around 250 titles in which *arıza* appears, and 58 titles in which *arızalı* is retrieved. Some of these titles concern the urban usage that is analyzed in this paper. In fact, out of the 58 titles, 30 are in this form, the most popular of which (retrieving 158 entries) being *arızalı erkeği gerçek aşkla yola getirme sendromu* (the syndrome of taming the disordered man by way of true love). That is to say, more than half of the titles proposed in relation to *arızalı* actually concern the ironic sense of the word. The first entry for *arızalı* in this non-literal urban usage seems to have been written in 2004 by the user "atlantis," and it goes, in its original format: *bazı arızalılar çok faydalıdır. belli konularda kılı kırk yardıkları için çok bilgili ya da uzman olabilirler* (some *arızalılar* are very useful. as they are very meticulous in certain topics, they can be very knowledgeable or expert) (punctuation as in original). Meanwhile, the first Ekşisözlük entry for *arıza* was recorded in 2001 by the user "bugs," and it follows: *sevgilinden ayrılıp içine düştüğün durum* (the situation that you fall into after you break up with your girl/boyfriend). So, one can assume that *arızalı* in the sense that it is used to describe a person in urban colloquial Turkish seems to be pretty popular on Ekşisözlük, not only by entering the dictionary early on, but also by constituting the content in half of the entries. As in the case of *komik*, however, this usage might not be familiar to the teacher and some of the students under focus in this paper.

In the 10th grade Turkish lessons with Ms. Derin, the beginning of the semester was spent on a strict focus on the course book. One of the reading texts that the teacher aimed to use for a class discussion was about the universal declaration of children's rights. In addition to providing some brief background information, the text presents the ten principles of children's rights in a much more simplified version. Ms. Derin asks students one by one to read aloud each principle. When it is his turn, Erhan (E) rephrases Principle 5, which goes "The child who is physically, mentally or socially handicapped shall be given the special treatment, education and care required by his particular condition" <www.unicef.org>. However, the word that he uses for handicapped puzzles the teacher:

Excerpt 2.

- 13 E: *arızalı çocuklara özel eğitim ve bakım sağlanmak- sağlanmalıdır*
special education and care should be provided for out of
order children
- 14 Ms.D: *okay (.) hangi çocuklara?*
okay (.) which children?
- 15 E: *arızalı*
out of order
- 16 S: *engelli*
handicapped
- 17 Ms.D: *bugün modern Türkçede özürlü de deniyo*
today in modern Turkish it is called disabled as well
- 18 S: *engelli*
handicapped
- 19 Y: *özürlü*
disabled
- 20 Ms.D: *engelli ya da özürlü*
handicapped or disabled
- 21 S: *arızalı (smiles)*
out of order (smiles)
- 22 Ms.D: *arızalı biraz hani makineymiş gibi*
out of order sounds as if it is a machine
- 23 M: *kaba oldu biraz*
it is a little bit impolite
- 24 Ms.D: *evet*
yes

Erhan's use of the word *arızalı* in line 13 here immediately catches the teacher's attention, mainly because she seems to recall the literal sense of the word when she hears it. Meanwhile, as one of the least attentive students in the Turkish classes, Erhan's attempt seems to be a genuine failure in finding the right word in his rephrasing of the relevant principle from the children's rights declaration. His peer Serhat (S) immediately provides the standard form *engelli* (handicapped) in the following turn. The teacher then remarks that in modern Turkish it is called *özürlü* (disabled), as well. A few turns later, she underlines that both *engelli* (handicapped) and *özürlü* (disabled) can be used. Her emphasis on "modern Turkish" seems to

stem from a need to separate *özürlü* from the more colloquial uses of the word (e.g. *sakat*). Meanwhile, in line 21, Serhat repeats the word *arızalı* and his smile following it hints at his acknowledgement of the unusualness of this usage. In the next line, Ms. Derin explains that *arızalı* might imply a machine, conforming to the standard sense that the word is used. Mert, on the other hand, gets the urban colloquial meaning immediately, and following the teacher's turn, states that it would be an impolite use, and receives confirmation from the teacher (line 24).

As in the case of *komik*, *arızalı* seems to be retrieved from the Turkish-German transnational scale in the sense that the more contemporary meaning acknowledged by Mert does not appear familiar to the teacher. The contemporary colloquial Turkey-Turkish that Mert incorporates in his speech seems to be unfamiliar not only to Ms. Derin, but to his classmates, as well. Again, this can be explained by his more extended exposure to Turkey-Turkish than his peers. As they co-construct the word search altogether within the microgenetic timescale, Mert and his peers also enact their typical roles constructed within the mesolevel timescale, as in offering one-word equivalents in turn and following the interaction order as they always do in an online word search exercise.

4. Discussion

Recorded one semester apart, the two classroom interaction excerpts analyzed in this paper demonstrate teacher-led foci on single word search in which students participate. In both cases, the teachers have reservations about the urban meaning implied by these lexical items, which seems to show their lack of awareness of this semantic widening. Given their limited exposure to the language, their age, and looser ties with the homeland compared with most of their students, the two teachers' distance to contemporary Turkey-Turkish discourse is only natural.

While there is a good range of differences between the teachers' and the students' linguistic repertoires, one source of this difference seems to be scalar: the transnational scale that Mert situates himself within is not familiar to the two teachers at all. As educated members of the Turkish community in Germany, they locate themselves in the kind of German-Turkish transnational scale that is heavily informed by a distinction between the educated class and the more conventional immigrant profile. Belonging to the former group, they put special effort into modeling standard Turkish in their lessons (Erduyan, 2014; cf. Schröder, 2003). Against this repertoire, more stylistic, urban usages are seen as marginal and they receive corrections, as in the case of the two excerpts analyzed in this paper.

Meanwhile, for a student like Mert, using contemporary urban Turkey-Turkish forms in interaction is a matter of situating himself within the transnational scale

that he perceives differently than his teachers and peers. Besides the conventional migration trajectory of his family, his active ties with the homeland, his history in Turkish schools until grade 2, his social media presence, and his active social life in both Berlin and Adana contribute to the construction of this scale. Both *komik* and *arızalı* in the sense that Mert is aware of belong to urban repertoires in Turkey; and as in the use of any slang, they help the speaker enact a certain type of identity. This is the identity of the urban cool, somebody who is self-confident about her/his presence in urban society and who can easily locate individuals around him as such. Mert can easily recognize the identity enacted by the use of slang. From his perspective, it is not a marginal type of identity, but one of the most common forms of enacted identities that he sees around himself. In urban youth linguistic practices, incorporating the most recent, trendy uses of lexical items that have gained new social meanings is quite commonly studied (e.g. Dovchin, 2011; Rampton, 1995/2014). By offering *komik* in the word search exercise, Mert actually brings this type of use to the attention of the teacher, most likely assuming that he would receive confirmation. This assumption partially stems from his perception of the teacher as a good speaker of standard Turkish. Also, as depicted in detail in Erduyan (2019), Mert feels proximity to the Turkish teachers in this study due to his better language skills than the rest of his classmates. This proximity seems to give him the idea that he shares a common ground with the teachers when it comes to the understanding of language. Within this common ground, in the second excerpt, Mert aligns with the teacher's comment this time, and in a more accurate way than her, explains why *arızalı* would not be acceptable, and responds "it is a little bit impolite" (line 23).

In both of the excerpts, Mert's acknowledgement of the most recent urban usages suggest his awareness of and self-positioning within a transnational scale that does not share much with his teachers' generation. Turkey-based linguaculture accesses classrooms in Europe (or elsewhere) much more easily today than in the past due to communication technologies. Inevitably, this affects the characteristics of the language spoken in the classroom. Other than the proficiency-related factors that have been depicted extensively in Turkish as a heritage language research, discursive repertoires of the students play a role in their classroom performance, as well. In constructing these repertoires, students draw on resources from the transnational scale, and, as the analyses in this paper reveal, incorporate elements from Turkey-Turkish discourse in their speech. The other relevant scales in which classroom interactions unfold, the microgenetic and the mesolevel scales, contextualize the entrance of the transnational scale into the classroom discourse (cf. Maloney & De Costa, 2017; Wortham, 2006). Thus, as has been analyzed in this paper, a regular word search activity constructed as an IRF sequence in a turn-by-turn fashion draws on scales that are far beyond the lesson, unit, course book, or instruction.

For Auer (2008), “the social meaning of linguistic heterogeneity does not (usually) reside in individual linguistic features but rather in constellations of such features which are interpreted together (Auer, 2008, p. 13). The constellations Auer writes about can be extended to scales as nesting various types of discourses. The constellation that defines the linguistic and identity repertoire of a student like Mert, for instance, will be dissimilar to many of his classmates. While they will be affected by diachronic changes in German- and Turkey-Turkish, they will also be shaped by the synchronic variation between German- and Turkey-Turkish. Analyzing discourse as such will illuminate how generational differences in Turkish as spoken in Europe take place, and what makes the Turkish heard in Turkish heritage classrooms across Europe today different than three decades ago.

5. Conclusion

This chapter has taken a discourse analytic perspective into Turkish heritage language classroom interaction and sought to analyze the use of contemporary Turkey-Turkish urban linguistic forms by German-Turkish students and teachers. Centering on two adjectives that have gained new social meanings in Turkish colloquial, the analyses have problematized the construction of a transnational scale in the classroom through discourse and have revealed the differences with respect to the construction of this scale across students and teachers.

This chapter has sought to situate itself within an epistemological, ontological, and paradigmatic expansion in studies on Turkish in Europe. The chapter calls for an expanded view of interactional discourse in the study of Turkish as a heritage language so as to include issues that foreground speaker agency (such as identity or positionality in discourse). In this sense, in order to serve for a fuller understanding of linguistic practices, heritage language research on Turkish in Europe might follow a path that has been embraced in the U.S.-based heritage language research.

Transcription conventions

Turkish	<i>italics</i>	°low°	low volume
English Translation:	regular case	°°low°°	very low volume
(.)	short pause	>>xx<<	very fast tempo
(x.0)	x second pause	<u>underlined:</u>	high vol.
=xx	fast connection	::	vowel lengthening
>xx<	fast tempo	xx-	abortion of utterance
[...]	commentary		

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Heritage language bilingualism refers to contexts where a minority language spoken at home is (one of) the first native language(s) of an individual who grows up and typically becomes dominant in the societal majority language. Heritage language bilinguals often wind up with grammatical systems that differ in interesting ways from dominant-native speakers growing up where their heritage language is the majority one. Understanding the trajectories and outcomes of heritage language bilingual grammatical competence, performance, language usage patterns, identities and more related topics sits at the core of many research programs across a wide array of theoretical paradigms. The study of heritage language bilingualism has grown exponentially over the past two decades. This expansion in interest has seen, in parallel, extensions in methodologies applied, bridges built between closely related fields such as the study of language contact and linguistic attrition. As is typical in linguistics, not all languages are studied to the same degree. The present volume showcases what Turkish as a heritage language brings to bear for key questions in the study of heritage language bilingualism and beyond. In many ways, Turkish is an ideal language to be studied because of its large diaspora across the world, in particular Europe. The papers in this volume are diverse: from psycholinguistic, to ethnographic, to classroom-based studies featuring Turkish as a heritage language. Together they equal more than their subparts, leading to the conclusion that understudied heritage languages like Turkish provide missing pieces to the puzzle of understanding the variables that give rise to the continuum of outcomes characteristic of heritage language speakers.

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ISBN 978 90 272 0793 7



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JOHN BENJAMINS PUBLISHING COMPANY