

Article

Word Order in Complex Verb Phrases in Heritage Polish Spoken in Germany

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Abstract: This paper deals with word order in complex verb phrases consisting of auxiliaries and infinitive complements in heritage Polish. In Polish, infinitive complements normally follow auxiliaries, but discontinuous structures occur if required by the information structure. We investigate the occurrence and evaluation of adjacent and discontinuous word order patterns in relation to (a) the chronological age at testing and (b) the age of onset of the acquisition of the majority language, German. Therefore, we distinguish between simultaneous bilinguals (2L1, $n = 61$), early sequential bilinguals (cL2, $n = 41$) and an age-matched monolingual control group (ML, $n = 50$). The data consist of elicited oral narratives as well as acceptability judgments. We found that both 2L1 and cL2 bilinguals differ from the ML, but the difference depends on the age at testing and the type of data (oral production or evaluation). While 2L1 bilinguals show a u-curve development, which is shaped by the interplay of delayed acquisition in childhood and attrition in early adulthood, cL2 bilinguals started to prefer discontinuous structures rather early. Only in adulthood do both groups converge and exhibit an overuse and over-acceptance of discontinuous structures compared to the ML, which is due to cross-linguistic influence from German. However, language-internal factors (such as clause structure) also turned out to impact the distribution of adjacent and discontinuous structures in heritage (and monolingual) Polish.

Keywords: heritage linguistics; Polish; German; word order; cross-linguistic influence; simultaneous bilinguals; early sequential bilinguals; attrition; delay; complex verb phrases



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1. Introduction

Polish belongs to the most widespread heritage languages in Germany. Although there is a lack of statistical data on the exact number of Polish heritage speakers in Germany, official demographic surveys on the number of people with a “migration background” allow for a rough approximation. According to the data for 2017, there are 2.1 million people with a Polish migration background living in Germany. Furthermore, 436,000 of these people (20.8%) were already born in Germany, i.e., exhibit the typical profile of a potential heritage speaker of Polish (BAMF 2019, p. 232). The bulk of Polish heritage speakers belong to the second or later generations of repatriates of German descent, who were granted the possibility to leave Poland in several waves in the middle of the 1950s and at the beginning of the 1970s and 1980s (Brehmer and Mehlhorn 2020, p. 398). Especially after the fall of the Iron Curtain in 1989, the numbers of immigrants from Poland considerably increased, and repatriates were the group that, due to their German ancestry, benefited most from the political turnover. Presently, most of the immigrants are ethnic Poles, who—after the accession of Poland to the European Union in 2004—gained a legal base for immigration to Germany and access to the German labor market, which was previously limited to seasonal workers in the agricultural and construction sector or persons who married a German partner. Owing to the geographical closeness of Poland to Germany, frequent trips to Poland contribute to language maintenance among representatives of the second

generation, as do the virtually unlimited possibilities to engage in interpersonal exchanges with Polish-speaking friends and relatives via social media and the internet in general (Besters-Dilger et al. 2015, p. 53). However, the percentage of parents who encourage their children to take (additional) classes in the heritage language seems to be lower than for other allochthonous minorities in Germany (Brehmer and Mehlhorn 2020, 401f., 417f.). This reluctance cannot be accounted for by a lack of possibilities to receive Polish language instruction; at least in bigger urban areas, Polish (heritage) language instruction is offered by a wide variety of institutions. They range from bilingual schools, state schools which offer classes in Polish as a foreign language¹ to state and community schools, private organizations, the Catholic church (*Polska Misja Katolicka* “Polish Catholic Mission”) or Polish institutions where children from Polish-speaking families can attend courses in Polish language and on other aspects of Polish culture (Mehlhorn 2017; Brehmer and Mehlhorn 2018).

2. Theoretical Background

2.1. Word Order in Heritage Varieties of Polish and Other Languages

Given the vast number of Polish heritage speakers in Germany, it is highly surprising that there is comparatively little research on the structural features of heritage Polish in Germany. Early studies were mostly concerned with lexical innovations (Mazur 1993; Warchol-Schlottmann 1996; Nagórko 1997; Brehmer 2008). Furthermore, there is some research on single grammatical domains such as case and verbal aspect (Anstatt 2013), tense (Brehmer and Czachór 2012), mood (Błaszczuk 2018) and agreement marking in noun phrases (NPs) (Besters-Dilger et al. 2015, 61ff.; Brehmer and Rothweiler 2012). The syntactic domain, however, is clearly an understudied area. Studies have been mostly concerned with phenomena from the syntax/pragmatics interface, such as null subjects (Brehmer et al. 2019), null objects (Rinke et al. 2019) or definiteness marking (Błaszczuk 2013). With regard to word order, there has been no comprehensive study on heritage Polish in Germany at all. This is surprising given that the majority language, German, with its strong constraints on verb placement (V2 in assertive main clauses, V-final in subordinate clauses, V1 in yes-no questions) substantially differs from Polish where information-structural requirements are the decisive factors for the linear distribution of sentence constituents (see below for more details). This opens up multiple possibilities for investigating cross-linguistic influence (CLI) in this contact setting.

How word order is affected by language contact in heritage varieties has been the topic of numerous studies in recent years. The picture that emerges from the results of these studies is, however, rather mixed. Obviously, the extent of CLI in word order varies depending on the structural properties of the languages in contact, data types (production vs. judgment data) and speaker-related factors such as chronological age and proficiency in the heritage language. In order to show the conflicting evidence that previous studies offered, we focus on only two studies that yielded almost opposite results. Camacho and Kirova (2018) examined verb–adverb word order in American heritage speakers of Spanish by using an acceptability judgment and a selection task. The heritage speakers showed a higher preference for the adverb–verb–object order in affirmative sentences, which is consistent with both Spanish and English grammars, compared to the behavior of a monolingual control group in the same task. The authors treat their results as evidence for CLI, which leads to a preference for options that are compatible with the structural analysis of both languages. Kupisch (2014), on the other hand, could not confirm CLI in her study on adjective placement in adult heritage speakers of Italian in Germany, despite a partial structural overlap: in the acceptability judgment task, the heritage speakers accepted the canonical postnominal placement (absent from German) to a higher degree than Italian-dominant bilinguals living in Italy, even if it were not target-like. Kupisch accounts for this behavior by introducing the notion of “cross-linguistic overcorrection,” i.e., a preference for

¹ Mostly in the Eastern federal states, especially in the immediate border region to Poland (Mehlhorn 2017).

the structure that is *not* shared by both languages but unique for the heritage language. This is possibly due to the awareness of differences between the languages and the need to stress these differences rather than resort to structures compatible with both languages. However, Kupisch admits that in the naturalistic data the heritage speakers did not differ from the Italian-dominant bilinguals from Italy and showed only very low error rates in adjective placement. This stands in contrast to previous studies on child heritage speakers of Italian, which observed an overuse of prenominal adjectives in natural speech and treated this as evidence for CLI from the majority language. Kupisch links this conflicting evidence to age effects by claiming that “non-target-like structures in bilingual development disappear over time” (Kupisch 2014, p. 230).

Research on word order variation in heritage varieties of Polish is in general extremely scarce. Studies that offer an overview on different heritage varieties of Polish (e.g., Dubisz 1997) refer to the replication of word order patterns of the majority language in heritage Polish. This includes the use of prenominal instead of canonical postnominal possessives (see also Sussex 1993, p. 1020; Laskowski 2014, p. 118), prenominal placement of adjectives, as well as subject–verb inversion in yes–no questions. Furthermore, loss of word order flexibility in heritage Polish is another frequently mentioned phenomenon that is normally accounted for by postulating CLI (see Laskowski 2014, p. 118, for heritage Polish in Sweden).

For our own investigation of word order restructuring in heritage Polish and possible effects of CLI, we refer to the predictions of the Interface Hypothesis that structures involving different sub-modules of grammar (e.g., syntax and morphology, “internal interfaces”) are more resilient to restructuring in heritage grammars than properties located at “external interfaces,” i.e., properties that involve interfaces between grammar and other cognitive domains (e.g., syntax and discourse) (Sorace 2011, 2012). Word order involves properties of both types of interfaces. In German, verb placement with its strict regulations obviously belongs to early-acquired domains of core syntax (and should therefore be less affected by restructuring) compared to the more pragmatic nature of word order in Polish, which requires the integration of contextual information in choosing the appropriate word order. Therefore, we expect verb placement in heritage Polish to be an interesting property to test hypotheses targeting the distinction between structures at internal and external interfaces with regard to their differing vulnerability to language change and CLI.

2.2. Age Effects in Heritage Language Acquisition

Apart from investigating word order from the perspective of CLI and the Interface Hypothesis, we use the studied property also as a testing ground for investigating the effects of age-related background factors on word order restructuring in heritage Polish (see the preceding section with some remarks on possible age-related outcomes). In doing so, we distinguish between the impact of the chronological age at testing and the age of onset of the acquisition of the majority language (German). *Chronological age* is often considered a proxy for the cumulative length of exposure and, more indirectly, for the cumulative amount of input from the L1 and the L2 that the children are exposed to during their lifespan (see Gagarina and Klassert 2018 for an overview of relevant research). For heritage speakers, it is generally claimed that majority language input constantly increases with chronological age while heritage language input and use (may) radically decrease, which often results in a shift in language preference/dominance (cf. Benmamoun et al. 2013; Rothman 2009 or Kupisch and Rothman 2018). This might substantially slow down or even further impede the acquisition of structures in the heritage language or lead to the attrition of L1 properties that had already been acquired at earlier stages of the lifespan (Montrul 2008, 2015). In order to disentangle these three types of outcomes (delay, arrested development and attrition), which, however, can occur simultaneously in individuals and affect different properties of the heritage language to a variable degree, we pursue an apparent-time approach that compares several age groups of heritage speakers with regard to the property being studied. If a property is acquired target-like in younger

age groups (even in cases where its acquisition was delayed compared to monolingual peers) but shows deviant features in adult or adolescent heritage speakers, we can, with all likelihood, assume that this property underwent attrition (see, e.g., Polinsky 2011). The impact of age of onset (AoO) of the majority language and the length of exposure to it has also been addressed in heritage language research, albeit to a much lesser degree than chronological age. In general, majority language AoO has been treated as an indicator for input language dominance. For children who began acquiring the majority language at a later age, the heritage language (L1) had more time to develop independently from the majority language compared to children who acquired both languages simultaneously from birth (Kupisch and Rothman 2018). While there is ample research on similarities and differences between simultaneous bilinguals (2L1) and early sequential bilinguals (cL2) in bilingual language acquisition (cf. Meisel 2011), many studies on heritage languages do not systematically distinguish between these two types of heritage speakers (see Kupisch 2013 for a criticism of previous research on this topic). Studies that did take into account AoO effects did not yield consistent results. With regard to its impact on the overall lexical and grammatical skills in the heritage language, Armon-Lotem et al. (2011) and Gagarina et al. (2014) did not find any correlations between L2 AoO (German and Hebrew) and these skills in heritage Russian. Lein et al. (2017), however, report on significant correlations between L2 AoO (German) and productive and receptive lexical skills, as well as productive morphosyntactic skills, in heritage Portuguese. Janssen et al. (2015) found L2 AoO as the only significant predictor for correctness in case processing in heritage Russian. Studies that systematically compare simultaneous and early sequential bilingual heritage speakers also offer inconclusive evidence. Some results point to an advantage of early sequential bilingual heritage speakers in maintaining target-like structures of the heritage language, which is accounted for by a longer period of unimpeded acquisition of the heritage language before the onset of the acquisition of the L2 (Montrul 2008, p. 60; cf. also Montrul 2002; Schwartz and Minkov 2014; Gagarina and Klassert 2018; Montrul et al. 2019). This stands in sharp contrast to numerous studies that show that simultaneous bilinguals, despite receiving input from the majority language from birth, do not necessarily differ from sequential bilinguals regarding the degree of attainment in their L1s (see Kupisch 2013 for an overview on relevant studies). Moreover, many studies stress that even if the developmental path of the acquisition of the heritage language, which is usually the weaker language, may differ from that of respective monolinguals, its development is qualitatively similar to that of the majority language despite the fact that it may be delayed or influenced by the majority language (Meisel 2007; Meir 2018).

2.3. Studied Structure

Polish exhibits basic subject–verb–object (SVO) word order but allows various linearizations depending on the information status of sentence elements. The relatively free word order is also restricted by specific rules for the placement of adjectives or clitics. In unmarked pragmatic contexts, complex predicates in main clauses, e.g., full/modal verbs that require an obligatory infinitive complement, occur in Polish with a word order where infinitive complements immediately follow the auxiliary:

- | | | | | |
|----|--------------|------------------------|------------------------|-----------------------|
| 1. | On
He-NOM | chc-e
want-PRST.3SG | złapać
catch-INF.PF | ptak-a
bird-ACC.SG |
|----|--------------|------------------------|------------------------|-----------------------|
- “He wants to catch a/the bird.”

Discontinuous structures in which the infinitive complement does not immediately follow the auxiliary are, however, possible in Polish if required by the information structure. This is often the case if the direct object is a discourse-given topic and is therefore expressed not by an NP but by a full or clitic pronoun. Then the preferred word order is discontinuous:

- | | | | | |
|----|--------------|------------------------|---------------------|------------------------|
| 2. | On
He-NOM | chc-e
want-PRST.3SG | go
he-ACC.clitic | złapać
catch-INF.PF |
|----|--------------|------------------------|---------------------|------------------------|
- “He wants to catch him/it.”

However, Polish clitics do not share the complete cluster of typical properties exhibited by clitic constructions as, for example, in Romance languages. Most importantly for our study, they do not always need to be placed strictly adjacent to the verb but allow for intervening elements, e.g., adverbs (see [Franks and King 2000](#), p. 162). Polish clitics usually appear in unfocussed pre- or post-verbal positions in contrast to full pronouns, which generally require focus ([Mykhaylyk and Sopata 2016](#)). The discontinuous ordering, as represented in Example 2, is furthermore consistent with the general cross-linguistically valid principle that lighter constituents tend to be placed to the left of the heavier ones ([Siewierska 1988](#)). Typically, anaphoric pronouns and other deictic markers that refer to previously introduced elements are short (i.e., syntactically “light”), while elements that introduce new information are normally more complex (=“heavy”) (cf. [Arnold et al. 2000](#)). If licensed by a pragmatically marked information structure and/or an appropriate context, however, discontinuous word order in Polish is equally possible for sentence 1, as is the adjacent placement for sentence 2. This mirrors the highly flexible word order in Polish:

- 1'. On chc-e ptak-a złapać
He-NOM want-PRST.3SG bird-ACC.SG catch-INF.PF ACC.SG
“He wants to catch a/the bird.”
- 2'. On chc-e złapać go za ogon
He-NOM want-PRST.3SG catch-INF.PF he-ACC.clitic by tail-ACC
catch-INF.PF
“He wants to grab him/it by the tail.”

In contrast to Polish, German has quite rigid restrictions regarding verb placement. It is a verb-second (V2) language where finite verbs appear in the second position in assertive main clauses. Verb placement in complex predicates in main clauses is also fixed and does not change depending on pragmatic factors. This results in the so-called “sentence bracket” word order in which the auxiliary occupies the V2 position, and the infinitive or participle complement occurs in clause-final position:

3. a. Er will den Vogel fangen
He-NOM want-PRST.3SG DET-ACC.M bird catch-INF
“He wants to catch the bird.”
- b. Er will ihn fangen
He-NOM want-PRST.3SG he-ACC bird catch-INF
“He wants to catch him/it.”

Thus, the word order in these constructions is always discontinuous in German, irrespective of whether the object is rendered by a full NP or a pronoun. In Polish, discontinuous placement is the default word order only for light elements, e.g., clitic object pronouns. But even in this case, where the structures in German and Polish are similar on the surface level, the exact syntactic analysis differs due to the V-to-T-to-C movement of the V2 type in German, which is absent in Polish.

According to previous studies, the existence of syntactic ambiguity and partial overlap of surface structures facilitate CLI (cf. [Döpke 1998](#); [Müller 1998](#); [Kupisch 2014](#)). Syntactic ambiguity is generally connected to language contact settings where the first language has only one possible syntactic construction while the second language offers two constructions, and one of them coincides with the construction in the first language. This is exactly the situation that our heritage speakers of Polish encounter: whereas German shows only discontinuous structures, Polish offers a flexible choice between discontinuous and adjacent structures depending on information-structural constraints. According to [Hulk and Müller \(2000\)](#), this partial structural overlap and the involvement of the syntax/pragmatics interface are both important prerequisites for triggering CLI. Thus, if CLI is at play, we would expect heritage speakers to overuse the discontinuous structure in contexts with a

full NP object, as illustrated by Example 1', even if this is not backed by the requirements of information structure. In contexts with pronominal objects, the structures should be more target-like due to the formal overlap with German (cf. Example 2 against 3b).

2.4. Research Questions and Hypotheses

Drawing on the inconclusive evidence of previous research on word order in heritage varieties presented in Section 2.1, our study addresses two core issues. Firstly, we want to investigate whether word order in heritage Polish is subjected to restructuring and, if yes, whether this restructuring is due to CLI from the majority language German. To tackle this goal, we compare elicited data from heritage speakers of Polish in Germany to age-matched control groups of Polish monolinguals. Secondly, we address the influence of chronological age and AoO of the acquisition of the majority language (German) on the emergence of (potentially deviant) word order patterns in Polish-German bilinguals. The effect of chronological age will be investigated by looking at whether the expected non-canonical (discontinuous) word order patterns of bilingual children persist through adulthood. For this reason, our sample covers several age groups from the preschool period until adulthood. To check the role of AoO of the majority language in the occurrence of non-canonical patterns, we divided our sample into two groups: simultaneous bilinguals and early sequential bilinguals (see Section 3 for more details). Two further dimensions of analysis will be included: (i) the role of the syntactic weight of constituents for the preference of discontinuous or adjacent ordering, (ii) possible differences in the bilinguals' performance depending on the nature of the task—elicited production vs. judgment data. The complex study design allows us to pose the following research questions (RQs):

RQ1: Do different age groups of simultaneous Polish-German bilinguals (i.e., 2L1 bilinguals) differ from age-matched monolinguals in their use of word order in complex verb phrases?

RQ2: Do different age groups of early sequential Polish-German bilinguals (i.e., cL2 bilinguals) differ from age-matched monolinguals in their use of word order in complex verb phrases?

Based on the predictions in the literature regarding conditions that favor the vulnerability of a particular phenomenon to CLI (e.g., location at an interface, such as syntax/discourse; partial overlap of surface structures in the two contact languages), we expect more frequent use of discontinuous structures in complex verb phrases in speakers of heritage Polish in Germany, due to (i) the formal overlap with the German "sentence bracket" construction and (ii) the pragmatic flexibility of word order in Polish, allowing in principle both the discontinuous and the adjacent placement of the infinitive complement depending on information-structural requirements. Regarding the impact of chronological age, we expect a gradual disappearance of non-canonical discontinuous structures in heritage Polish with increasing age, if Kupisch is correct in claiming that "non-target like structures in bilingual development disappear over time" (Kupisch 2014, p. 230). This might be caused by the fact that "[c]hildren opt for the syntactically more economical solution, which is present in both languages, while adults are not affected by complexity" (Kupisch 2014, p. 230). However, in our case, discontinuous structures are presumably more complex from a processing perspective. The more "economical solution" in our case could thus be the adjacent placement of the auxiliary and infinitive complement, which could result in children preferring the adjacent structure despite the cross-linguistic structural overlap favoring the discontinuous structure.

RQ3: Do different age groups of simultaneous (2L1) and early sequential (cL2) bilinguals differ from each other?

Although the inconsistent evidence provided by previous studies makes any predictions regarding the effect of AoO on word order preferences difficult, we suspect that early sequential bilingual heritage speakers behave more target-like due to a longer period of unimpeded acquisition of Polish before the onset of the acquisition of German.

RQ4: Are there differences between the results obtained from the oral narratives and the results obtained from the acceptability judgment tasks (AJT)?

Previous research on word order in heritage languages has shown that differences between monolinguals and heritage speakers are more pronounced when data from acceptability tasks are involved (cf. [Kupisch 2014](#)). This might apply to our informants as well, especially if we consider the fact that the acceptability of non-canonical word order patterns in Polish crucially depends on the information structure (focus). This makes the integration of contextual information necessary for judging the appropriateness of a given word order. Heritage speakers might thus encounter problems in the judgment task, as they have to figure out not only possible alternatives and their functional properties but also the pragmatic constraints on the use of the presented word order pattern (cf. [Kisselev 2019](#)).

RQ5: Are there differences in the distribution of word order patterns between contexts with full NPs and those with (clitic) forms of pronouns?

We expect our heritage speakers to be more target-like with regard to pronominal objects. Firstly, the default word order in Polish in this case corresponds to the discontinuous structure, which is obligatory in German. Secondly, pronouns have a lighter syntactic weight compared to full NPs, which promotes their placement to the left of heavier constituents such as the infinitive complement in our case.

3. Study Design

3.1. Participants

The data for the current analysis were gathered in three different research projects that targeted different age groups of Polish heritage speakers in Germany. The first project (P1) focused on AoO effects in Polish-German bilingual children between the ages of 4 years and 11 months and 13 years and 11 months. Participants in this project included altogether 102 bilingual Polish-German children living in Germany, who were compared to 50 age-matched monolingual Polish children living in Poland. The bilingual participants were divided into a group of simultaneous bilinguals and a group of early sequential bilinguals, depending on their AoO in German. Following a proposal of [Meisel \(2007\)](#), we regarded all children who started to acquire both languages before the age of 3 years as simultaneous bilinguals. All participants who started to acquire the majority language (German) after the age of 3 years were classified as early sequential bilinguals. The bilingual children from this study were further subdivided by their chronological age at testing, which resulted in three subgroups: (i) children between the ages 4 years and 11 months and 6 years and 11 months; (ii) children between the ages of 7 years and 2 months and 9 years and 11 months; and (iii) children aged between 10 years and 2 months and 13 years and 11 months (see [Tables 1 and 2](#)). Due to their lower number, we refrained from dividing the monolingual controls into further age groups. The second project (P2) dealt with the longitudinal development of heritage Russian and heritage Polish in adolescent speakers living in Germany. For the current study, we used data that were gathered from the Polish group during the last wave of data collection when the participants were between 15 and 17 years old. Although we did not systematically distinguish between simultaneous and early sequential bilingual heritage speakers when collecting the sample for this study, the 15 Polish-speaking adolescents were divided according to the same AoO criterion as the children of P1. Thus, for this age group, we have data from eight simultaneous and seven early sequential Polish-German bilingual adolescents (see [Tables 1 and 2](#)). In P2, we did not collect data from a monolingual control group. The last project (P3) was designed to systematically compare the grammatical proficiency of adult Polish heritage speakers in Germany ($n = 30$) to representatives of the first generation of immigrants who came to Germany as adults and completed school in Poland, as well as to age-matched monolinguals (both $n = 30$). Again, the distinction between simultaneous and early sequential bilingual heritage speakers was not systematically controlled in P3; however, for the current analysis, we split the heritage group in accordance with the AoO criterion into two subgroups. This resulted in a group of 19 simultaneous and 11 early sequential

bilinguals, with a total age span from 17 to 36 (see Tables 1 and 2). The monolingual control data will also be used for this age group as a means of comparison.

Table 1. Simultaneous bilinguals included in the study.

Age Group	N	Age Span (years; months)	(Mean)	AoO German (years; months)	(Mean)
AG 1	10	4;11–6;7	5;9	0–2;11	0;11
AG 2	15	7;2–9;11	8;2	0–2;9	1;1
AG 3	9	10;2–13;11	12;3	0–2;11	1;1
AG 4	8	15–17	16	0–2;0	0;3
AG 5	19	17–25	20	0–2;0	0;4
Total	61				

Table 2. Early sequential bilinguals included in the study.

Age Group	N	Age Span (years; months)	(Mean)	AoO German (years; months)	(Mean)
AG 1	4	5;0–6;11	6;1	3;1–4;7	3;9
AG 2	9	7;10–9;10	8;7	3;2–6;10	5;4
AG 3	10	10;4–13;5	11;1	3;0–7;2	4;9
AG 4	7	15–17	16	3;0–6;0	4;2
AG 5	11	21–36	27	3;0–7;0	5;0
Total	41				

All bilingual participants were either born in Germany in families where at least one parent spoke Polish to the children or born in Poland but moved to Germany with their parents no later than at the age of seven. Thus, they immigrated to Germany before or shortly after entering educational units in Poland, which accounts for their profile as heritage speakers of Polish. The early sequential bilingual speakers first came into contact with German mostly when they started to attend kindergarten and/or school. The monolingual participants were divided into two groups: children and adults (see Table 3).

Table 3. Monolingual control groups.

Age Group	N	Age Span (years; months)	(Mean)
Children	20	3;7–11;11	7;10
Adults	30	19–38	24
Total	50		

3.2. Methods

In all projects, we applied similar methods for eliciting the data that the current study builds on, but the details differ. In P1, all bilingual and monolingual participants had to take the same elicited oral production task. We used the Multilingual Assessment Instrument for Narratives (MAIN) test designed by Gagarina et al. (2012) and widely applied in studies on the narrative abilities of bilingual children from a variety of linguistic backgrounds. Here, the participants are exposed to a sequence of pictures and asked to tell the corresponding story. The narratives were audio-taped and subsequently transcribed using the EXMARaLDA tools (Schmidt 2002). In P2, we also used a picture story description task, but given the higher age of the participants, we used a picture story from the famous “Father and Son” comic strip series written by Erich Ohser (pseudonym E.O. Plauen) as a stimulus to elicit oral narratives from our adolescents. The same method (albeit with a different picture story from the same “Father and Son” series) was applied in P3. Here, we gathered additional semi-spontaneous oral production data by asking our participants

4. Results

4.1. Oral Production Data

4.1.1. Simultaneous Bilinguals vs. Monolinguals

The relative frequency² of discontinuous and adjacent word order patterns in complex verb phrases through all contexts in the data from the simultaneous bilingual heritage speakers (all age groups) is shown in Figure 1, together with the results obtained from the age-matched monolinguals:

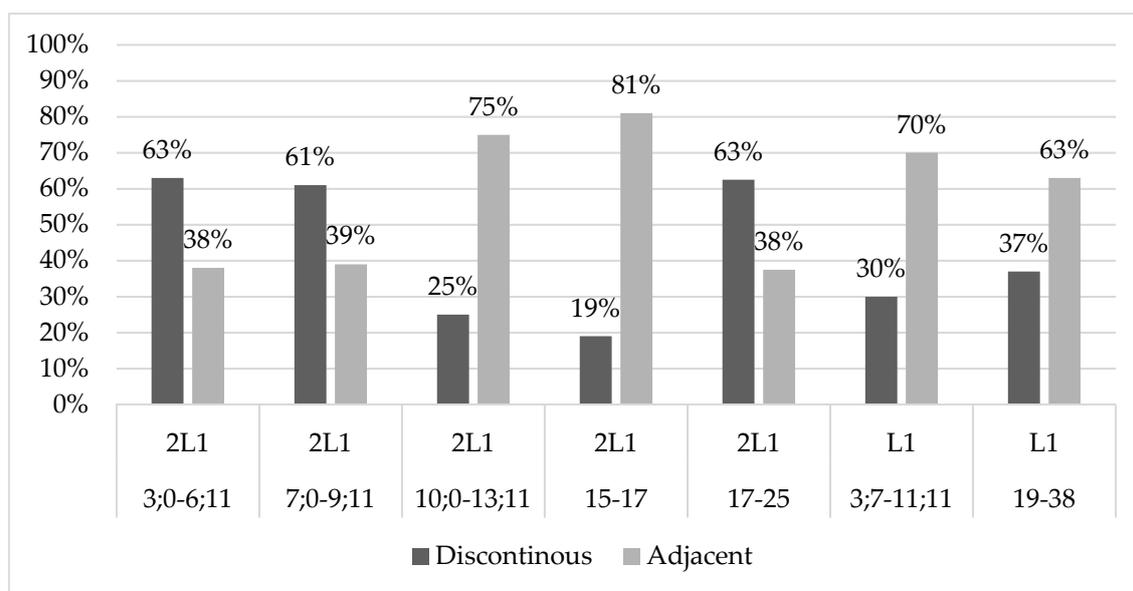


Figure 1. Relative frequency of discontinuous vs. adjacent word order pattern in simultaneous bilinguals (2L1) and monolinguals (L1).

The two youngest age groups of simultaneous bilinguals prefer to use the discontinuous pattern, which sets them clearly apart from the monolingual children who show the opposite preference. Simultaneous bilingual children and adolescents between the ages 10 and 17 predominantly resort to adjacent placement, which resembles the pattern we encounter in both monolingual control groups. The oldest group of 2L1 heritage speakers again exhibits a preference for discontinuous word order, which contrasts sharply with the preferences of their monolingual peers. The relative frequency is almost exactly reversed in these two groups. Pairwise comparisons between the age groups by using Fisher's exact test revealed statistically significant differences between the bilingual participants under the age of 10 and the following age group of simultaneous bilinguals ($p = 0.0011$), as well as between the bilingual adolescent group and the bilingual adults ($p = 0.0005$). The same significance level was found when comparing the monolingual and bilingual children ($p = 0.0089$), as well as the bilingual and monolingual adults ($p = 0.0001$).

Since the use of word order in complex verb phrases in Polish depends on information structure, we took a closer look at the use of discontinuous vs. adjacent word order in verb phrases depending on the clause structure. In what follows, we consistently distinguish between contexts where the complex verb phrase (VP) contains a full NP on the one hand and those in which a pronoun functions as the direct or indirect object on the other (see RQ5). In Polish, an element that receives the focus is mostly expressed by an NP and appears either at the beginning or the end of the sentence. In this case, the adjacent word order in complex VPs is most likely, i.e., the focused element occurs either after the infinitive complement or before the VP (see Example 1). If an element is not focused, it is

² An overview on the absolute numbers of tokens for each group and category is given in Appendices A and B.

mostly expressed by a pronoun and appears predominately between the finite verb and infinitive complement, which almost automatically leads to discontinuous word order in verb phrases (see Example 2). Figure 2 shows the relative frequency of discontinuous vs. adjacent word order patterns in verb phrases with full NPs in simultaneous bilinguals compared to monolinguals.

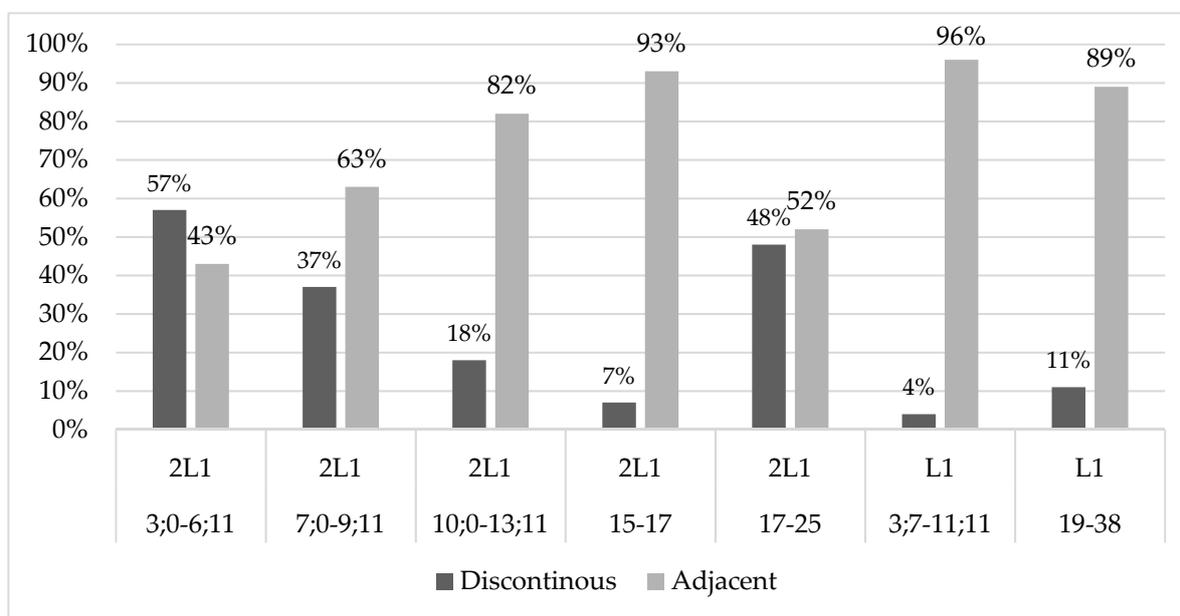


Figure 2. Relative frequency of discontinuous vs. adjacent word order pattern in verb phrases with noun phrases (NPs) in simultaneous bilinguals (2L1) and monolinguals (L1).

The monolingual data of both age groups convincingly confirm the preference for adjacent placement of infinitive complements in relation to auxiliaries if the VP is accompanied by an object that is expressed by an NP. Only the youngest and the oldest group of simultaneous bilingual heritage speakers show a deviant pattern, i.e., they prefer the discontinuous placement over the adjacent pattern in these contexts. Only from age seven, the child heritage speakers converge towards the monolingual preference for the adjacent pattern. Again, the groups between 10 and 17 years reveal a distribution that is in line with the monolingual controls. Pairwise comparison of the age groups showed that there is an emergent, statistically significant difference between the second and third age group of simultaneous bilingual children ($p = 0.0947$). Stronger effects could be found in comparing the adolescent and adult bilinguals ($p = 0.0056$), as well as the bilingual and monolingual children and the bilingual and monolingual adults, respectively (all differences significant at the $p < 0.0001$ level).

The picture changes substantially when sentences that contain a non-focused pronominal object are considered. Figure 3 displays the use of discontinuous vs. adjacent word order in verb phrases with pronouns for simultaneous bilingual heritage speakers compared to monolinguals.

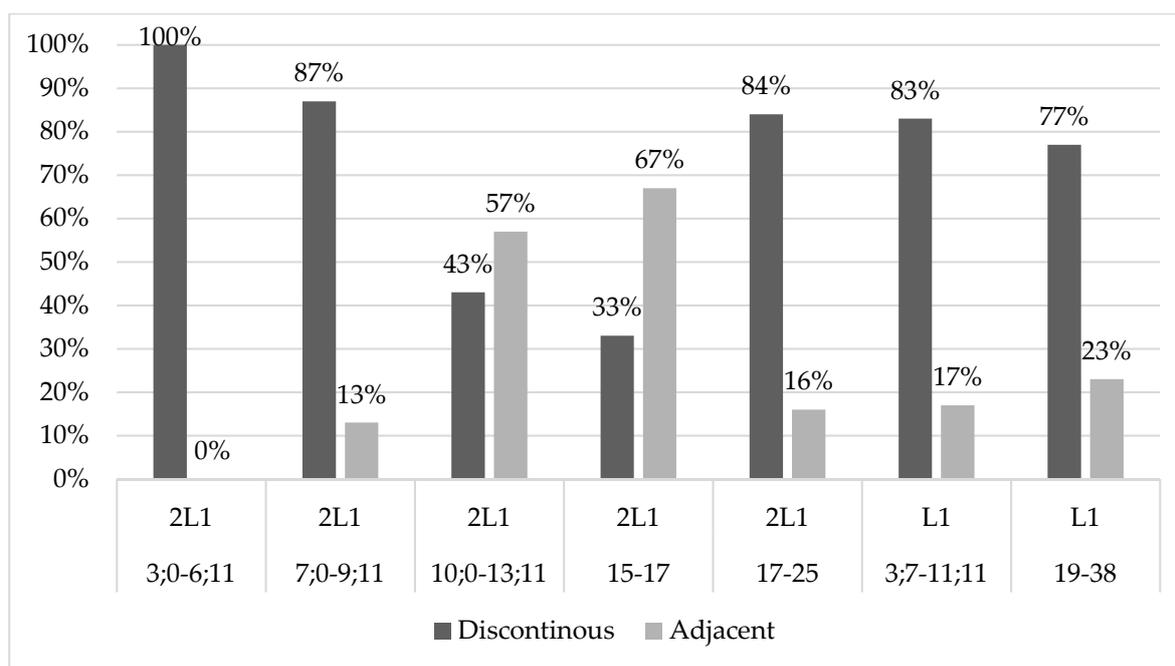


Figure 3. Relative frequency of discontinuous vs. adjacent word order pattern in verb phrases with pronouns in simultaneous bilinguals (2L1) and monolinguals (L1).

The data from the bilingual group must be treated with some caution, as the number of tokens for sentences with pronouns as (in)direct objects in the elicited narratives was considerably lower compared to sentences with NPs that occurred approximately twice as often as sentences with pronouns. However, we can see a strong preference for the discontinuous placement in clauses with pronouns in the data of both monolingual control groups. This tendency is generally mirrored in the group of simultaneous bilinguals, albeit with some exceptions. The groups of older children and adolescents, i.e., those aged between 10 and 17, prefer the adjacent placement of auxiliaries and infinitive complements despite the pronominal status of the (in)direct object in these sentences. These results, however, could be due to the extremely low number of items in the narratives in these two groups (seven and three items, respectively). A statistically significant difference emerges only between the second and third groups of bilingual children (i.e., starting with age 10, $p = 0.0331$).

4.1.2. Early Sequential Bilinguals vs. Monolinguals

Figure 4 shows the distribution of discontinuous vs. adjacent word order patterns in complex verb phrases in all contexts for the early sequential bilinguals compared to the monolinguals.

Again, we encounter a difference between the heritage speakers and the monolinguals. Only the youngest group of heritage speakers shows a strong tendency towards adjacent word order in complex verb phrases, similar to the age-matched monolingual group. All the older groups of heritage speakers prefer to some extent the discontinuous over adjacent placement, which contrasts with the patterns found in both monolingual groups. There is no clear development in the ratio of the two competing patterns in the bilinguals after the age of 7, which distinguishes this group of heritage speakers from the simultaneous bilinguals. A significant difference could only be established between the bilingual children as a whole (i.e., all children under age 14) and the monolingual children ($p = 0.0121$), as well as between the bilingual and monolingual adults ($p = 0.0674$).

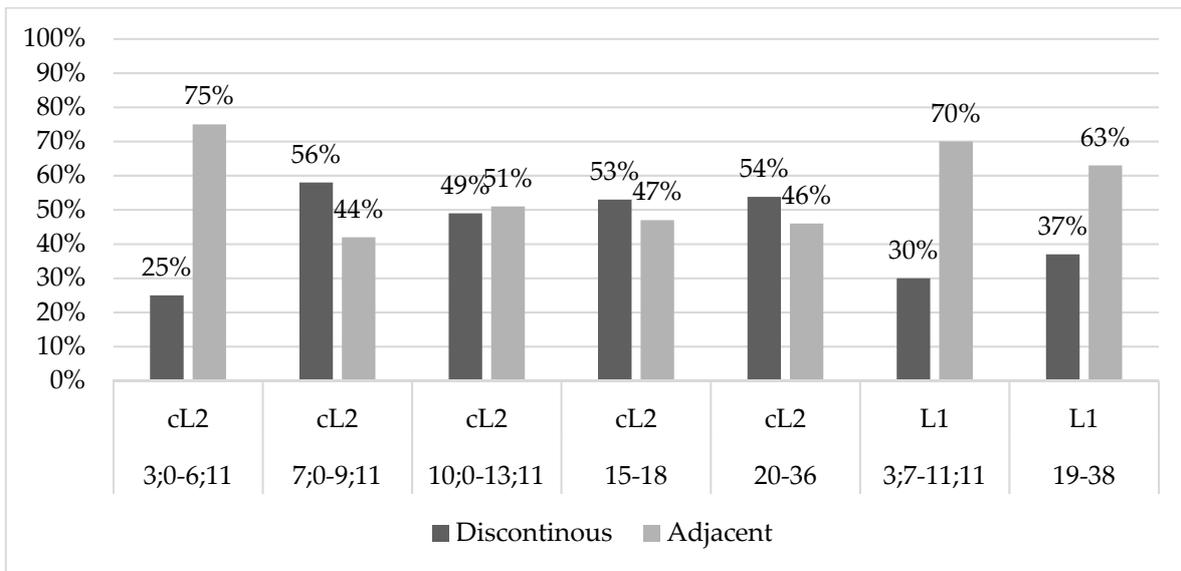


Figure 4. Relative frequency of discontinuous vs. adjacent word order pattern in early sequential bilinguals (cL2) and monolinguals (L1).

If we look at the distribution of the two competing patterns when only contexts in which a full NP functions as a direct object are taken into account, we get the following picture (Figure 5).

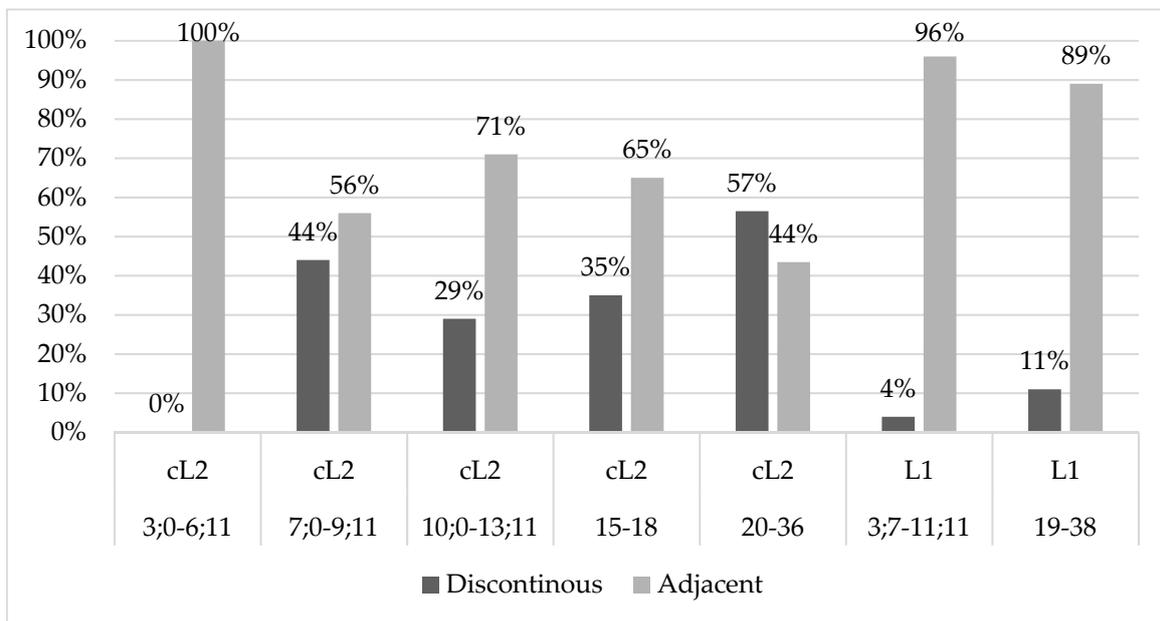


Figure 5. Relative frequency of discontinuous vs. adjacent word order pattern in verb phrases with noun phrases (NPs) in early sequential bilinguals (cL2) and monolinguals (L1).

The youngest early sequential bilingual group behaves like the age-matched monolingual control group. All older groups of heritage speakers who started to acquire the majority language later than the heritage language differ from the monolingual groups to some extent. The child and adolescent heritage speakers apply the adjacent pattern more often than the discontinuous placement, albeit to a much lesser degree than the monolinguals. The adult heritage speakers, however, prefer the discontinuous placement, which is clearly the opposite tendency in contexts with NPs, compared to the monolingual data.

Consequently, statistically significant differences emerge between the youngest group of bilingual children and the following age group ($p = 0.0313$), between the bilingual children under the age of 14 as a whole and the monolingual children ($p = 0.0002$), and between the bilingual and monolingual adults ($p < 0.0001$).

Finally, the relative frequency of the competing word order patterns in contexts with pronominal objects resembles, in general, the distribution that we found for the simultaneous bilinguals (Figure 6).

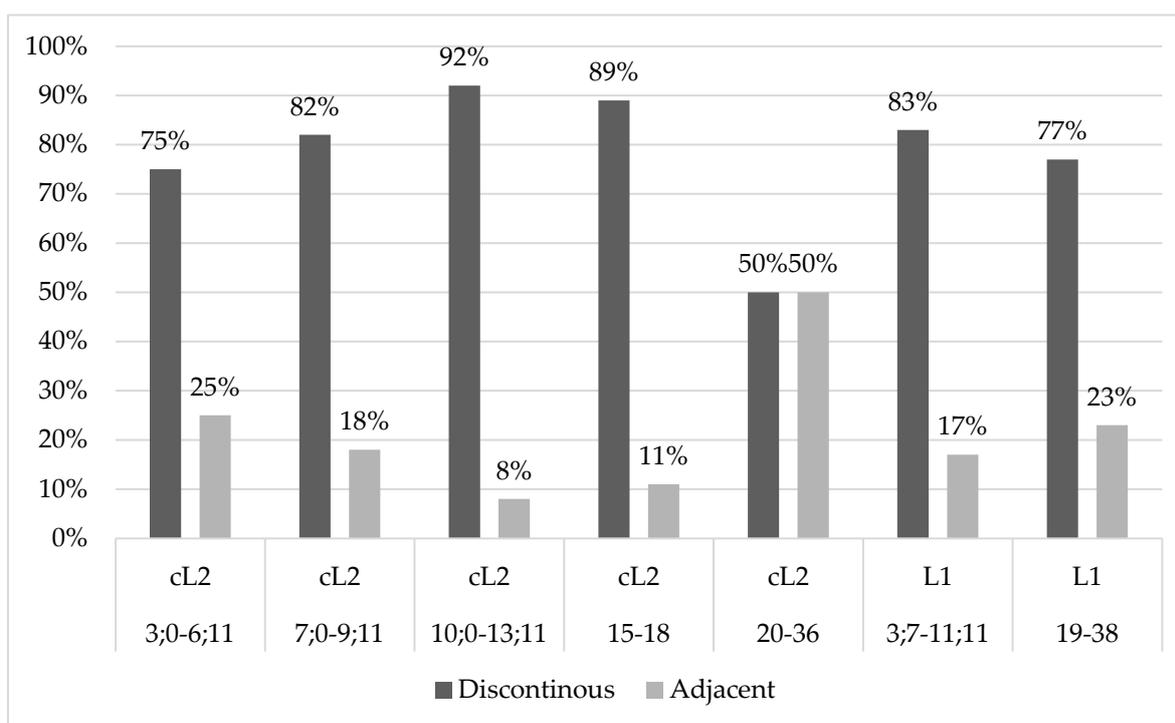


Figure 6. Relative frequency of discontinuous vs. adjacent word order pattern in verb phrases with pronouns in early sequential bilinguals (cL2) and monolinguals (L1).

Again, we refrain from drawing any far-reaching conclusions about age-related differences for the pronominal contexts due to the very low number of items. There is a strong preference for discontinuous placement in clauses with pronouns in the data of both the bilingual and monolingual groups. The distribution between discontinuous and adjacent placement is exactly equal only for the group of adult heritage speakers; however, there were only eight tokens in the whole sample of elicited narratives of this group that contained a pronominal object. There is a statistically significant difference between the bilingual children (taken as a whole) and the bilingual adults ($p = 0.0401$).

4.2. Judgment Data

As stated in Section 2, we focused on the acceptance of discontinuous placement of infinitive complements in different contexts by all bi- and monolingual groups (except the adolescent bilingual group in which no AJTs were conducted). The results of the AJT are presented in Figure 7 for the simultaneous and in Figure 8 for the early sequential bilinguals in comparison to monolinguals.

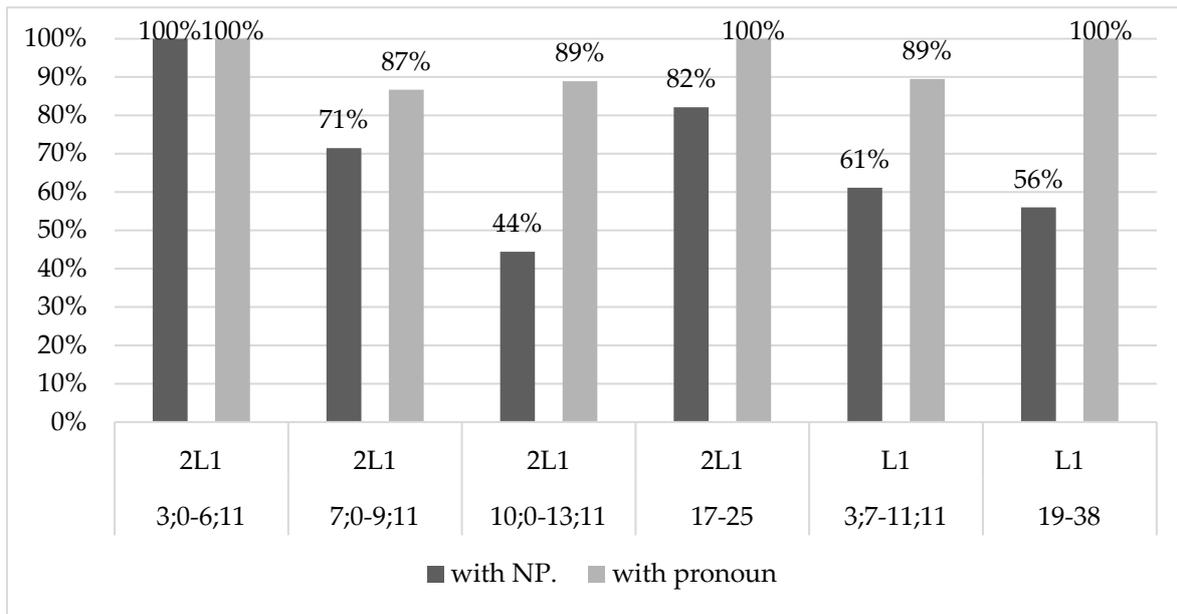


Figure 7. Acceptance of discontinuous word order in verb phrases with noun phrases (NPs) vs. pronouns in simultaneous bilinguals (2L1) and monolinguals (L1).

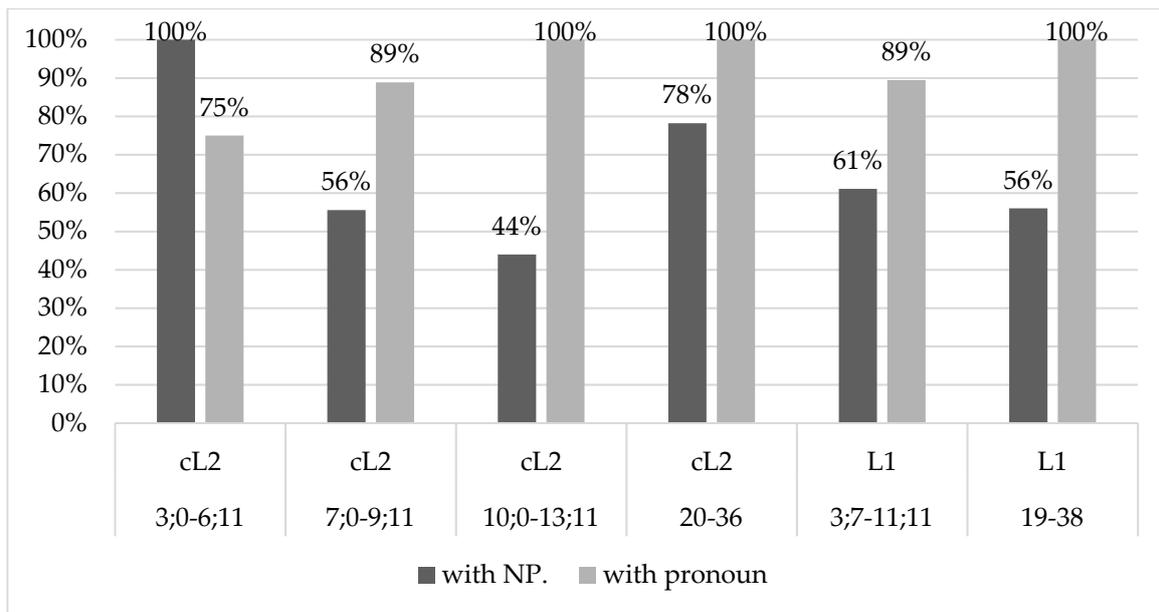


Figure 8. Acceptance of discontinuous word order in verb phrases with noun phrases (NPs) vs. pronouns in early sequential bilinguals (cL2) and monolinguals (L1).

Figures 7 and 8 exhibit a quite similar pattern. Almost all groups of heritage speakers converge with both monolingual groups by accepting the discontinuous verb structures with pronouns much more frequently than the discontinuous pattern with NPs. The only exceptions are, once again, the youngest groups of simultaneous as well as sequential bilinguals who show a different preference from that found in the age-matched L1 data. These divergent results may be linked to a rather small number of responses to the presented stimuli in the youngest groups. If all age groups of the children are taken together, both bilingual groups show no statistically significant difference from the monolingual children. With regard to the acceptance of discontinuous structures in verb phrases with full NPs, both bilingual groups exhibit a u-curve-shaped development when the age groups are

compared to one another. The acceptance of discontinuous placement of auxiliaries and infinitive complements in this context is considerably higher for the bilingual adults who tend to accept this pattern much more readily than their monolingual counterparts. The difference between the bilingual adults and their monolingual peers reaches statistical significance for both bilingual groups (simultaneous bilinguals: $p < 0.0001$; sequential bilinguals: $p = 0.0036$). When the bilingual age groups are compared to each other, we encounter a significant difference only between the early sequential bilingual children and the early sequential bilingual adults ($p = 0.0335$), but not between the groups of simultaneous bilinguals. There are no significant differences between all examined groups regarding the acceptance of the discontinuous placement of complex verb phrases in contexts with pronouns.

5. Discussion

5.1. Oral Production Data

5.1.1. Age Effects I: Simultaneous Bilinguals vs. Monolinguals (RQ1)

Our analysis revealed that different age groups of heritage speakers who acquired the heritage and majority language simultaneously differ considerably from monolinguals in their use of the two competing word order patterns in complex verb phrases. This difference is especially prominent with regard to the use of discontinuous word order patterns; but at the same time, the difference depends on the chronological age of the bilingual participants. While there is no significant difference between monolingual children and adults, we observe a u-curve-shaped development considering the preference for discontinuous placement of auxiliaries and infinitive complements, both with regard to the overall occurrence of discontinuous structures and—even more salient—in contexts where the complex verb phrases contain an NP. Here, the two youngest age groups of simultaneous bilingual heritage speakers, as well as the bilingual adults, differ significantly ($p < 0.01$, see Figures 1 and 2) from the age-matched monolinguals by showing a higher preference for discontinuous word order patterns. Only the bilingual teenagers between the ages 10 and 17 exhibit a monolingual-like preference for adjacent positioning of auxiliary and infinitive complements, especially in contexts with NPs. Thus, the initial stage of a clear difference between simultaneous bilingual and monolingual children is followed by a period of convergence towards monolingual preferences for adjacent structures in the bilingual teenagers. This period of convergence towards the monolingual-like treatment of discontinuous and adjacent placement in complex verb phrases is disrupted when the simultaneous bilinguals enter adulthood. The bilingual adults exhibit a strong tendency towards patterns that set them apart from age-matched monolingual controls and resemble the German discontinuous placement of the auxiliary and infinitive complement. Thus, our initial prediction is only partially confirmed: although simultaneous bilingual children indeed deviate from monolingual controls in their word order preferences, the same pattern can be found with bilingual adults. Non-target-like structures in bilingual development, therefore, do not disappear over time, as was claimed by Kupisch (2014, p. 230), but re-emerge in (simultaneous) bilingual adults, at least for our language pair and investigated linguistic property.

The differences between the simultaneous bilinguals and the monolinguals, however, change considerably when we look at complex verb phrases containing pronouns. Here, only the bilingual teenagers show a marked preference for adjacent word order patterns, which, however, sets them apart from the younger and older bilingual age groups, as well as from both monolingual control groups (see Figure 3). As contexts with pronominal objects are represented in the oral narratives by considerably lower numbers of tokens when compared to NPs, this striking difference is hard to interpret. More data are needed to verify whether the simultaneous bilingual teenagers indeed systematically differ from all other bilinguals and the monolingual groups in overgeneralizing adjacent placement of auxiliaries and infinitive complements in contexts with pronominal objects. If further data corroborate this tendency, this could be accounted for as an instance of “cross-linguistic

overcorrection," i.e., the overuse of structures that differ from the majority language (in our case, the overuse of adjacent word order patterns that would be ungrammatical in German), although discontinuous structures (resembling the German ones) would be more target-like in Polish.

5.1.2. Age Effects II: Early Sequential Bilinguals vs. Monolinguals (RQ2)

We encounter a clear age effect in almost all groups of early sequential bilinguals when compared to the monolingual controls: only the youngest bilingual group behaves like their monolingual peers. The older groups differ from the monolinguals by showing a significantly higher preference for discontinuous word order patterns in verb phrases containing an NP (significant differences between bilingual and monolingual children, as well as between bilingual and monolingual adults, both on the $p < 0.01$ level, see Figure 5). For the adult bilinguals, this trend also extends to sentences that contain a pronominal object, this time resulting in a higher ratio of adjacent word order patterns, which is at the same level compared to discontinuous patterns that are preferred by monolingual adults (see Figure 6). The difference between the bilingual and monolingual adults, however, turned out to be insignificant. Thus, the verb order in complex verb phrases with pronominal objects represents the only domain where the bilinguals mirror their monolingual peers. Differences between early sequential bilinguals and age-matched monolinguals emerge approximately from the age of seven and persist until adulthood, at least in contexts with full NPs. This higher preference for discontinuous patterns systematically distinguishes early sequential bilinguals from monolinguals, possibly as a consequence of CLI from the majority language.

5.1.3. Age of Onset Effects: Simultaneous Bilinguals vs. Early Sequential Bilinguals (RQ3)

A comparison of the simultaneous and early sequential bilingual heritage speakers yields interesting results: the two groups do indeed differ in some points in their development of the heritage language. The *simultaneous bilinguals* exhibit a u-curve-shaped development with respect to word order patterns in complex verb phrases in their Polish narratives. Simultaneous bilinguals under the age of 10 reveal a strong preference for non-canonical discontinuous placement of auxiliaries and infinitive complements, even in verb phrases with NPs. This stage is followed by convergence towards more monolingual-like preferences for adjacent patterns during adolescence. The adult bilinguals again reveal a strong tendency towards patterns that replicate discontinuous verb phrases in German, thereby differing significantly from the monolinguals. The *sequential bilingual heritage speakers* differ from the simultaneous bilinguals since they do not exhibit such a u-curve-shaped development. Here, it is only the youngest age group that shows a strong preference for adjacent structures similar to monolinguals (see Figure 4), both in general and with regard to verb phrases that are accompanied by NPs (see Figure 5). This tendency changes after the age of 7. The older sequential bilinguals do not show a clear preference for one or the other word order pattern, which leads to significantly higher ratios of discontinuous patterns compared to monolinguals, especially in contexts with NPs (see Figure 5). Even here, however, adjacent word order patterns are still more frequent than discontinuous patterns, at least until the bilinguals enter adulthood.

If these differences and similarities are considered with regard to the three general age levels distinguished here (children, teenagers, adults), we find the following tendencies, which are, however, restricted to contexts with full NPs or when both contexts (NPs and pronouns) are taken together: For the children (Age Groups 1–3), we find significant differences for the youngest group, i.e., Age Group 1 ($p = 0.0421$ for all contexts, $p = 0.0096$ for contexts with full NPs), and for the oldest age group, i.e., Age Group 3 (here, however, only when all contexts are looked at together, $p = 0.0413$). If all three age groups are merged into one, the significance effect disappears. The data that were gathered in P2 from bilingual teenagers (aged 15–17) show a significant difference between the simultaneous and the early sequential heritage speakers overall ($p = 0.0224$) and in contexts with full

NPs ($p = 0.094$). For the bilingual adults, the difference again does not reach statistical significance: both simultaneous and early sequential bilingual adults exhibit an overall tendency towards discontinuous placement in complex verb phrases.

The distribution of both word order patterns in sentences with pronominal objects shows fewer clear differences between the two bilingual groups; however, due to the low number of relevant tokens, these results can only be analyzed tentatively. Here, the u-curve-shaped development of the simultaneous bilinguals described above holds for this context as well but leads to a more monolingual-like preference for discontinuous structures in the youngest and the oldest groups, whereas the bilingual teenagers show a reversed preference, which contrasts sharply to the monolingual controls. The early sequential bilinguals exhibit a monolingual-like preference for discontinuous structures from the youngest age groups onwards, and only the adult bilinguals exhibit an equal distribution of both forms in the narratives, which diverges from the monolingual adults (although this difference does not reach statistical significance). A comparison between the two bilingual groups in this specific context reveals significant differences only for the age group between 10 and 13 years (Age Group 3, $p = 0.0307$) and, to a lesser extent, for the bilingual adults ($p = 0.0737$).

How can these differences and parallels between simultaneous and sequential bilingual heritage speakers be explained? We interpret the differences between the two youngest bilingual groups as a result of delayed acquisition of the default word order in Polish complex verbal phrases by the simultaneous bilinguals. This delay effect can be traced back either to cross-linguistic influence from the second L1 German, or to a lesser amount of exposure to the heritage language, when compared to early sequential bilinguals where contact with the majority language starts later in life. This delay effect has been frequently observed in many heritage speaker populations and with regard to the acquisition of different properties (Gathercole 2007; Kupisch 2007; Austin 2009; Gathercole et al. 2013; Paradis et al. 2014; Unsworth 2014; Flores et al. 2017). We cannot disentangle the possible causes of the delay effect on the basis of our data. Less intensive input from the heritage language in the case of simultaneous bilinguals seems to be a plausible explanation for this delay in the acquisition of word order preferences. Schlyter (1993) and Blom (2010), for instance, report that bilingual children who receive a very unbalanced input from both of their languages develop a weaker language that displays a slower rate of acquisition and is more prone to structural transfer from the stronger (in our case, the majority) language. CLI from the stronger language at this stage can be explained as a strategy to maximize bilingual compatibility in cases of properties that exhibit structural overlap: bilingual children prefer options that are compatible with the structural analysis of both of their languages, i.e., they resort to an economical solution (Camacho and Kirova 2018). The stronger language, however, develops at the same speed and in a similar way as in monolingual children. Since the sequential bilingual children were exposed to only one language for three or more years from birth, they receive the usual amount of input from the heritage language. Therefore, we expect no delay in the acquisition of word order preferences for younger individuals. Our results are then in line with Montrul's (2008, p. 60) claim that heritage speakers who acquire the heritage and majority languages sequentially exhibit better attainment of the heritage language than those who acquire them simultaneously.

The picture changes, however, when the results of the other age groups are taken into consideration. Our data show that older sequential bilinguals (>7;0) exhibit a stronger tendency towards discontinuous patterns of word order in verb phrases when compared to simultaneous bilinguals and monolinguals. Since the youngest sequential bilinguals seem to have already acquired the default word order in Polish complex verb phrases, the results of the older sequential bilingual groups cannot be explained by a delay effect anymore. Rather, the findings point to an attrition effect that is possibly caused by CLI from their L2 German; the more frequent occurrence of discontinuous word order patterns compared to the monolingual controls can be explained as a replication of the dominant verb placement pattern in the majority language (cf. the German "sentence bracket"). Surprisingly, CLI

seems to have a smaller effect on the older (starting from age 10) heritage speakers who acquired both languages simultaneously. In contrast to the younger groups, the adolescent simultaneous bilinguals use less discontinuous structures in their narratives and thus begin to mirror the monolinguals' preference for adjacent structures. A tentative explanation for this result could be that a later convergence towards the target grammar makes grammatical properties temporarily more robust against CLI (Austin 2009). The fact that our adolescent simultaneous bilinguals from age 13 onwards show a monolingual-like preference for the adjacent placement of infinitive complements corroborates previous findings on heritage language acquisition. Evidence for a protracted yet native-like development of properties when the heritage speakers enter adolescence comes from studies that include older groups of heritage speakers and compare them to younger groups (Gathercole 2007; Gathercole and Thomas 2009). According to these accounts, heritage speakers who had restricted access to input from the heritage language from early on (as in the case of simultaneous bilingual heritage speakers) may need more time to accumulate positive evidence for certain structures. Flores et al. (2017) report on age boundaries for the native-like acquisition of mood choice in complement clauses of heritage Portuguese. According to their data, children with more exposure to the heritage language (due to both parents being speakers of Portuguese) acquired mood in complement clauses by age 8–9, while those with less exposure (coming from mixed marriage families) only acquired the property being studied by age 12–13, which nicely fits our data.

When entering adulthood, however, both bilingual groups exhibit the same developmental tendency: the ratio of discontinuous word order patterns in complex verb phrases that contain NPs increases rapidly and leads to a significant divergence from the behavior of the monolingual control group that shows a clear preference for adjacent word order patterns in their narratives. In the long term, the distinction between simultaneous and sequential bilingual acquisition of the heritage language that occurs with younger age groups gets blurred. Contrary to the prediction of Montrul (2002, 2008), our data of adult heritage speakers show that simultaneous and sequential bilinguals differ equally from monolingual adults in the investigated domain, at least for the oral production data. This development can be accounted for by the ongoing attrition of the heritage language in adult heritage speakers. This attrition might be due to increasing CLI from German as they start to build their own lives outside the family (which with all certainty leads, on average, to reduced input from and output of the heritage language). This finding is in line with Köpke and Genevska-Hanke (2018), who demonstrate that attrition is highly dependent on the context of language use and can change rapidly with modifications in the immediate language environment. Since discontinuous structures are arguably more difficult to parse (see, e.g., Weyerts et al. 2002), the reason for preferring these structures cannot be sentence-processing economy. The influence from the majority language, which requires discontinuous placement in complex predicates, seems to be the most likely cause for the deviant adult heritage speakers' preferences. Furthermore, our data corroborate the predictions of the Interface Hypothesis (Sorace 2011, 2012): as word order in Polish is subject to systematic contextual variation depending on information-structural constraints, it clearly represents a phenomenon at the syntax/discourse interface. Hence, it is rather vulnerable to CLI, as attested by the preference for non-canonical discontinuous word order patterns with full NP objects in both bilingual groups.

The data on word order patterns in verb phrases that contain a pronominal object are harder to interpret due to the low number of items in the narratives. Our data support the tentative interpretation that simultaneous bilingual teenagers experience a phase where they overgeneralize the preference for adjacent structures, which leads to monolingual-like patterns in verb phrases with NPs, in contexts with pronominal objects as well. Upon entering adulthood, they converge again towards the monolingual pattern that prefers discontinuous placement in these contexts. This effect is absent from the sequential bilingual teenagers. Here, however, it is the adults that start to diverge from the monolingual pattern as they show more frequent use of adjacent structures compared to the monolingual adults.

However, as statistical testing has revealed, they begin to differ significantly only from the simultaneous bilingual adults ($p < 0.1$), but (still) not from the monolingual adults. Clearly more data on complex verb phrases with pronominal objects are needed to substantiate this possibly divergent development.

5.2. Judgment Data (RQ4)

Another important result of the current analysis consists of the differences between production and judgment data, as had been predicted. The supposedly marked (at least with regard to contexts with full NPs) discontinuous word order pattern is treated differently when monolingual participants are asked to judge these structures in comparison to their use in the (pseudo-)spontaneous oral speech data. Whereas discontinuous placement occurs only in 4% (children) and 11% (adults) of the tokens with full NPs elicited from the monolingual controls (see Figures 2 and 5), both groups accept the same structure in the same context (with full NP) in more than half of all presented cases (61% and 56%, see Figures 7 and 8). This finding hints at the pragmatic flexibility of word order in (monolingual) Polish, which allows, in general, both discontinuous and adjacent word order patterns if they meet the requirements of information structure. Thus, when asked to judge items, participants can be inclined to construct contexts where both types of placement could be regarded as acceptable.

A similar high degree of acceptance of discontinuous word order patterns can be found in both bilingual groups. In contexts where the complex verb phrase contains a pronoun, the acceptance rates of the discontinuous structures in almost all groups exceed the acceptance rates exhibited in contexts with full NPs, which is in line with the monolingual pattern. Only the youngest groups of simultaneous and early sequential bilinguals accept all instances of discontinuous word order in contexts with full NPs, which yields a different distribution when compared to the other groups. The behavior of the youngest groups in the acceptability judgment task, however, has to be analyzed with extra caution, since judging the acceptability of sentences is quite a demanding task for young children (cf. [de Villiers and de Villiers 1972](#)). Furthermore, statistical testing showed no significant differences between the youngest and the older groups of bilinguals, which is possibly also due to the lower number of responses to the presented stimuli that could be elicited from the younger children. In general, both bilingual groups behaved similarly to the monolingual control groups, apart from the bilingual adults. Both bilingual adult groups differed significantly from the monolingual adults by accepting more discontinuous structures in contexts with full NPs (significance level $p < 0.01$ in both instances). There is no statistically significant difference between both groups of bilinguals. Only for the early sequential bilinguals could a significant difference be established between the children (merged into one group) and the adults ($p < 0.05$), with the latter accepting more discontinuous structures on average in contexts with full NPs. No similar tendency was found within the simultaneous bilingual groups.

In summation, contrary to our initial assumption, the differences between the bilingual and monolingual groups are more pronounced in the production data than in the judgment data. To a certain extent, this can be explained by a more “liberal” attitude of the monolingual groups towards non-canonical word order patterns in the AJT, reflecting the high degree of flexibility in Polish word order. Only in the bilingual adult groups, we found statistically significant deviations from the reactions of the monolingual controls, but bilingual adults also differ from the monolingual adults in the production data. We treat these findings that only the two bilingual adult groups differed from their monolingual counterparts in the AJTs as evidence that, at least for the bilingual children, we cannot assume a different representation of the studied property when compared to monolinguals. In line with Meisel’s proposal (2007), we instead interpret the bilingual production data with their greater preference for discontinuous placement patterns in contexts with full NPs to be a result of “bilingual language use.” According to this claim, specific processing mechanisms in bilingual language use, which originate from the fact that both languages

are always activated to some extent in a bilingual's mind, cause "covert code-switching," which leads to the insertion of structural properties from one language into the other. This holds for both types of heritage speakers to an equal degree.

5.3. Language-Internal Factors: Clause Structure (RQ5)

The discussion of the data convincingly showed that clause structure has a considerable impact on the selection or judgment of word order patterns in Polish complex verb phrases. There is a clear distinction between contexts where the complex verb phrase contains a full NP and those where it is combined with a pronoun. In order to investigate the effect of this language-internal variable on word order, we ran a logistic regression analysis on our whole data set. It revealed that both acquisition type (i.e., 2L1, cL2 and monolingual) and clause structure in general yielded strong, significant effects for word order preferences ($\chi^2 = 22$, $df = 2$, $p < 0.0001$ for acquisition type and $\chi^2 = 107$, $df = 2$, $p < 0.0001$ for clause structure). Clause structure affected word order preferences for all three groups to a significant degree ($p < 0.001$). Pairwise between-group comparisons revealed few significant differences for word order preferences in contexts with pronouns when compared to contexts with full NPs. In other words, bilinguals clearly differ less from monolinguals with regard to word order patterns in contexts with pronouns than in contexts with full NPs, as had been expected. However, in contexts with pronouns the preferred pattern is discontinuous (i.e., the pronoun appears between the auxiliary and the infinitive complement (see Example 2)), this discontinuous placement provides fewer problems in the acquisition when compared to the adjacent structure in contexts with full NPs. We again interpret this fact with "covert code-switching." As German, in general, requires discontinuous word order patterns irrespective of the type of other clausal components (NPs or pronouns), the parallel discontinuous patterns preferred in Polish for clauses with pronouns pose fewer problems for acquisition compared to the diverging adjacent patterns in clauses with full NPs. Structural overlap can be seen as promoting CLI in this case. Hence, adjacent structures in clauses with full NPs require more time to be acquired and are more vulnerable to attrition than discontinuous structures in clauses with pronouns.

6. Conclusions

Our study provided new insights into the dynamics of heritage language development by looking at a hitherto understudied language pair (Polish-German). Data from different age groups of simultaneous and early sequential bilinguals were compared to data from age-matched monolingual controls and included elicited oral production and acceptability judgment data. The results revealed a complex interplay of different factors shaping the acquisition of discontinuous and adjacent word order patterns in Polish complex verb phrases consisting of auxiliaries or full verbs and infinitive complements. The outcomes observed in the study are shaped by acquisitional delay, cross-linguistic influence, cross-linguistic overcorrection and attrition, thus highlighting the vulnerability of the investigated property to restructuring and/or language contact. This corresponds to predictions of the Interface Hypothesis, as word order in complex verb phrases is guided by both language-internal factors and pragmatic/discourse factors. The first group of factors includes the syntactic weight of the constituents, which depends first and foremost on the shape of the direct object (a heavy full NP or a light clitic pronoun), while the latter factors are connected to information-structural requirements.

Regarding speaker-related factors, the results of the study clearly suggest that it is necessary to take into account both the chronological age of the heritage speakers and their age of onset for the acquisition of the majority language. The simultaneous and early sequential Polish-German bilinguals differ from age-matched monolinguals and to a certain extent also from each other. Simultaneous bilingual heritage speakers first show a delay in the acquisition of target-like adjacent placement in contexts with full NPs, which is due to CLI from the majority language. Simultaneous bilingual children in this very first phase

prefer options that are compatible with the structure available in both of their languages (discontinuous placement patterns in this case). Later on, however, they converge towards the monolingual pattern and even extend the adjacent pattern to contexts with pronominal objects where discontinuous patterns would be more target-like. We treat this phase as an instance of cross-linguistic overcorrection at play. The early sequential bilinguals, on the contrary, start with quite target-like behavior, which can be explained by their dominant input from the heritage language at the very beginning; however, upon entering school education in the majority language, they begin to overuse discontinuous structures in contexts with full NPs. Thus, CLI gains traction in later childhood and persists until adulthood. Only in adulthood do both groups of bilinguals converge in their preference for discontinuous structures, both with regard to production and judgment data, which clearly sets them apart from age-matched monolinguals. We treat this as an effect of ongoing attrition that is related to more intense CLI at later stages of their linguistic development. Hence, at least for our sample and the investigated property, we cannot state that non-target-like structures in bilingual development disappear over time. The developmental trajectory and the factors shaping the outcomes in the acquisition of word order patterns differ between simultaneous and early sequential bilinguals, leading to a more target-like behavior at different phases in their development. Regarding the investigated property, both types of bilinguals, however, end up with the same end-state grammar (after entering adulthood), which is different from the monolinguals' grammar.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board of the University of Konstanz (IRB Statement 30/2016, date of approval: 3 November 2016).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Data Availability Statement: The data of the adult bilinguals are publicly available and can be found here: <http://hdl.handle.net/11022/0000-0007-D0D4-E> accessed on 2 December 2020. The data of the bilingual children and adolescents presented in this study are available on request from the corresponding author. These data are currently not publicly available due to privacy issues, but they will be added to the above mentioned repository after the anonymization of the data.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Numbers of tokens and percentages of discontinuous and adjacent word order patterns in verb phrases in general, in verb phrases with NPs and in verb phrases with pronouns—simultaneous bilinguals (2L1), early sequential bilinguals (cL2) and monolinguals (L1)—Figures 1–6 in the body of the text.

Table A1. Exact numbers of tokens for each word order type and group of participants included in the study (narrative tasks).

Group	Age Span (years; months)	Verb Phrases		Verb Phrases with NP		Verb Phrases with Pronoun	
		Discontinuous	Adjacent	Discontinuous	Adjacent	Discontinuous	Adjacent
2L1	3;0–6;11	20 63%	12 38%	13 57%	10 43%	6 100%	0 0%
2L1	7;0–9;11	31 61%	20 39%	10 37%	17 63%	20 87%	3 13%
2L1	10;0–13;11	11 25%	32 75%	6 18%	28 82%	3 43%	4 57%
2L1	15–17	4 19%	17 81%	1 7%	13 93%	1 33%	2 67%
2L1	17–25	65 63%	39 38%	23 48%	25 52%	21 84%	4 16%
cL2	3;0–6;11	3 25%	9 75%	0 0%	8 100%	3 75%	1 25%
cL2	7;0–9;11	20 56%	16 44%	11 44%	14 56%	9 82%	2 18%
cL2	10;0–13;11	20 49%	21 51%	8 29%	20 71%	12 92%	1 8%
cL2	15–18	18 53%	16 47%	6 35%	11 65%	8 89%	1 11%
cL2	20–36	21 54%	18 46%	13 57%	10 44%	4 50%	4 50%
L1	3;7–11;11	24 30%	56 70%	2 4%	48 96%	20 83%	4 17%
L1	19–38	57 37%	98 63%	8 11%	65 89%	34 77%	10 23%

Appendix B

Acceptability Judgment Task—total numbers and percentages of accepted and rejected discontinuous word order patterns in verb phrases with NPs and in verb phrases with pronouns—simultaneous bilinguals (2L1), early sequential bilinguals (cL2) and monolinguals (L1)—Figures 7 and 8 in the body of the text.

Table A2. Numbers of accepted and rejected items in the Acceptability Judgment Task.

Group	Age Span (years; months)	Discontinuous Verb Phrases			
		with NP		with Pronoun	
		Accepted	Rejected	Accepted	Rejected
2L1	3;0–6;11	8 100%	0 0%	8 100%	0 0%
2L1	7;0–9;11	10 71%	4 29%	13 87%	2 13%
2L1	10;0–13;11	4 44%	5 56%	8 89%	1 11%
2L1	17–25	78 82%	17 18%	19 100%	0 0%
cL2	3;0–6;11	4 100%	0 0%	3 75%	1 25%
cL2	7;0–9;11	5 56%	4 44%	8 89%	1 11%
cL2	10;0–13;11	4 44%	5 56%	9 100%	0 0%
cL2	20–36	43 78%	12 22%	11 100%	0 0%
L1	3;7–11;11	11 61%	7 39%	17 89%	2 11%
L1	19–38	84 56%	66 44%	30 100%	0 0%

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