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Best *case* scenario

Case marking in prepositional phrases in heritage German

Abstract: This article investigates accusative and dative case marking in determiner phrase (DP) complements of prepositions in adolescent first-generation heritage speakers (HSs) and monolingually raised speakers of German. Prepositions were subdivided into three types: single-case prepositions governing one case exclusively, two-way prepositions in accusative contexts, and two-way prepositions in dative contexts. Quantitative and qualitative analyses across speaker groups and within HSs were performed to additionally account for HS heterogeneity. The aim was to inquire whether a) participants differ in their canonical case marking of DP complements of single-case and two-way prepositions, b) the accusative or the dative are more prone to non-canonical case marking within two-way prepositions, and c) HSs' non-canonical DP complements of single-case prepositions follow specific patterns. Results show that HSs produce slightly fewer non-canonical DP complements of single-case prepositions. Additionally, less non-canonical DPs appear in dative contexts of two-way prepositions than in accusative contexts across speaker groups. Lastly, HSs' non-canonical DP complements of single-case prepositions show systematic patterns of morphological underspecification and overgeneralization. Overall, the results of this article point to the fact that case marking is acquired, and more importantly retained, in first-generation HSs.

Keywords: case marking, heritage German, accusative case, dative case, prepositional phrase

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1 Introduction

Case marking is a theoretically and empirically intriguing and complex phenomenon because of the many factors interacting across linguistic subdomains, making it an interface phenomenon par excellence in the sense of Sorace (2011) and Tsimpli (2014). The grammatical category of case is relevant for the distribution and identification of arguments and their thematic role within clauses. Languages vary widely with respect to how they realize case and how many cases are overtly distinguished, which adds to the theoretical challenge. Abstracting away from manner of realization, it can be argued that languages universally need case as pointers to argument function. Therefore, theoretical accounts divide case into abstract Case and overt, morphologically spelled-out case.[1]

In inflectional languages, like German, morphological exponents may spread throughout a complete determiner phrase (DP), with determiners, adjectives, and sometimes nouns agreeing in terms of case features. In languages with reduced or no overt inflections, like English, the function of case marking is predominantly taken over by word order and pre- or postpositions.

Morphological case can be assigned structurally (structural case) or via inherent lexical features of governing heads (lexical case) such as verbs, prepositions, or nouns. Structural case marking depends on configurational relations such as government: the subject receives nominal case, the direct object usually accusative, and the indirect object usually dative case. Lexical case[2] is determined by properties of the governing head (Chomsky 1981: 170–172; Czepluch 1996: 26; Haspelmath 2012: 3; Eisenberg 2013).

In this contribution, the morphological realization of case is analyzed in adpositional contexts. More specifically, I focus on case marking in DP complements of prepositions in German. Since German is a satellite-framed language in the sense of Slobin (2003), a comprehensive analysis of case marking in prepositional phrases (PPs) needs to account for the crucial function of prepositions and their semantic function. Case marking in these PPs is complex as prepositions themselves are sensitive to features outside the PP to match specific requirements of the verb, for instance with respect to the expression of path and location in verbs of motion. Single-case prepositions (single case, [1]) leave no choice: they govern one case exclusively. In two-way prepositions, one head is compatible with more than one case – in German typically accusative vs. dative, and in a few cases the genitive. Hence, learners need to discover and identify reasons responsible for the variation encountered in the input, such as differences between prepositions which assign structural case and exclusively govern one case and those where "idiosyncratic case requirements overrule structural case assignment", thus resulting in different preposition-

[1] The question whether morphological case is the direct spell-out of abstract Case (see McFadden 2004 for an exhaustive discussion) will not be discussed as it is irrelevant for the phenomena investigated in this article.
[2] Depending on the theoretical framework, lexical case is also referred to as *inherent case* or *quirky case* (Eisenbeiss et al. 2005; Haspelmath 2012: 3).

plus-case combinations depending on the semantic context (Tracy 1986: 67). These aspects make case marking after two-way prepositions more intricate (see also Garzonio & Rossi 2020: 8 for comments on the complexity of adpositional phrases and differences in the conceptualization of path and place in the PP). Therefore, in the context of two-way prepositions, in addition to syntax (government) and morphological spell-out, another interface needs to be considered: the semantic dependence of PPs on their contexts with respect to either directional reading, thus referring to paths (accusative context, two-way$_{ACC}$, [2a]) or locative reading, referring to places (dative context, two-way$_{DAT}$, [2b]). While both realizations of the PP in (2) are correct, the semantic felicitousness is restricted by the context.

(1) *Der Hund spielt* [*mit* [***einem Ball***]$_{DP}$]$_{PP}$.[3]
the dog plays with a.DAT ball
'The dog plays with a ball.'

(2) a. *Der Hund rennt* [*auf* [***die*** ***Straße***]$_{DP}$]$_{PPdirectional}$.
the dog runs onto the.ACC street
'The dog runs onto the street.'

b. *Der Hund rennt* [*auf* [***der*** ***Straße***]$_{DP}$]$_{PPlocative}$.
the dog runs on the.DAT street
'The dog runs on the street.'

This article investigates the morphological realization of the accusative and the dative case in DP complements of prepositions in adolescent heritage speakers (HSs) of German with English as their majority language (ML). Additionally, DPs of adolescent monolingually raised speakers (MSs) of German are also analyzed, not as a baseline for HS productions but to show the spectrum of variation present in both HSs and MSs when faced with the same communicative task.

Previous research has – unsurprisingly – shown that HSs exhibit non-canonical variation in their production of morphological and morphosyntactic features (Boas 2009a; Montrul 2011; Yager et al. 2015; Polinsky 2018; Aalberse et al. 2019; Putnam et al. 2021). The acquisition of case marking in German is a challenge even in contexts where German is the only L1 (Clahsen 1984; Tracy 1986; Szagun 2004). It is sensible, then, to assume that difficulties in acquiring – and retaining – case marking intensify once a second language enters the scene in early childhood, as is the case in HSs. Researchers who explored case marking in older generations of HSs in German language islands have identified differences in case marking of HSs when compared to reference grammars of German or to MSs of German due to reduction and overgeneralization patterns, especially in the dative paradigm (Boas 2009a; Yager et al. 2015; Boas 2016; Zimmer 2020; Putnam et al. 2021).

[3] All examples are retrieved from the RUEG corpus (https://doi.org/10.5281/zenodo.5808870, 24 July 2025).

In order to investigate case marking in DP complements of prepositions, I pose the following research questions.

RQ1: Are there differences in canonical case marking of DP complements of single-case vs. two-way prepositions?
RQ2: Are there more non-canonical DPs in accusative or in dative contexts of two-way prepositions?
RQ3: Do HSs' non-canonical DP complements of single-case prepositions follow specific patterns?

The aim of this article is to ascertain whether previous observations in research on case marking in heritage German can be replicated in the participant population under consideration: second-generation immigrant but first-generation HSs, whose case paradigms have so far received relatively little attention. The study focuses on a seemingly small syntactic domain, namely PPs, which lies, however, at the interface of different grammatical levels: syntax (government), morphology (spell-out of paradigmatic choices), semantics (context-dependent interpretation), and phonology (phonological realization of morphological paradigms). Thus, while case marking in PPs seems to be a minor phenomenon at first sight, its scope reaches well beyond its domain. The paper also ties in with current discussions on heterogeneity in HSs by comparing results not only across and within speaker groups but also within individuals. Consequently, inter- and intra-individual variability are accounted for. Section 2 provides the theoretical background and an overview of previous studies on morphological case marking in older generations of HSs of German in HL islands. Section 3 outlines the methodology and the corpus, followed by the results in Section 4. Section 5 presents the discussion and Section 6 lays out the conclusion.

2 Theoretical background

2.1 The German case paradigm and its acquisition

German, belonging to the Indo-Germanic languages, largely retained its inflectional paradigms and marks case in various constituents across DPs.[4] The codified German standard has four cases: *nominative*, *genitive, dative,* and *accusative*, which are externally assigned by specific heads (mostly verbs and prepositions), and marked on determiners, adjectives, and occasionally on (specific) nouns. German, like other fusional languages, encodes case, gender, and number on a single exponent, resulting in substantial syncretism in inflectional paradigms (cf. Table 1).

The interplay of several grammatical types of features which are morphologically encoded in single exponents and often lack clear and unique forms (with masculine paradigms being most

[4] See McFadden (2020) for a summary on case in Germanic languages.

explicit, followed by neuter paradigms) "threatens" the possibility for clear and unambiguous marking of grammatical relations in German (Eichinger 2014: 124). Hence, case marking in German and the analysis thereof are not possible without taking into account gender and number marking as well. While this article focuses on case morphology, I want to acknowledge the importance of these two grammatical areas and will return to their possible implications for interpretation in the *Results* section.

Table 1: German case inflectional paradigm for (in-)definite articles

	Masc.	**Fem.**	**Neut.**	**Plural**
Nom	*der*/*ein*	*die*/*eine*	*das*/*ein*	*die*
Gen	*des*/*eines*	*der*/*einer*	*des*/*eines*	*der*
Dat	*dem*/*einem*	*der*/*einer*	*dem*/*einem*	*den*
Acc	*den*/*einen*	*die*/*eine*	*das*/*ein*	*die*

Various pathways for the acquisition of case morphology in German have been proposed, all of which agree that the dative and the genitive are acquired considerably later than the nominative and the accusative. Clahsen (1984: 12) and Tracy (1984, 1986: 54) suggested the following acquisitional journey (with the exclusion of the genitive).

(i) no case markers present (and no carrier systems)
(ii) appearance of nominative forms
(iii) binary case system (nominative and accusative forms)
(iv) emergence of dative morphemes
(v) the establishment of the appropriate relationship between prepositions and cases in PPs

Even though these steps are presented as individual and sequential stages here, it should be emphasized that they are, in fact, developmental strands, which are being progressively intertwined in the acquisition of case morphology (Tracy 1986: 55).[5] There is general agreement that an early binary case system distinguishing between nominative and non-nominative forms becomes discernible between the ages two and three in normally developing children. Distinctions between the nominative and the accusative typically appear around age three, while the dative

[5] More recent work on the acquisition of case marking also emphasizes that there is no clear-cut distinction between acquisitional steps, especially concerning the differentiation between the nominative and the accusative. Szagun (2004: 25–26) reports that while "[…] nominatives achieve higher levels of correct use than accusatives and datives […]", the accusative error rates are higher for indefinite articles than for definitive articles, leading to "[…] temporal dissociation in the acquisition of accusative across article paradigms."

does not emerge until the end of age three or later (Tracy 1986: 50).[6] The complete case paradigm, including the genitive, is usually acquired by age six (Clahsen 1984: 3). This drawn-out process can be explained by the fact that German shows considerable homonymy across case paradigms, rarely marks case via suffixation on the noun, and has no unambiguous form-function mappings (Tracy 1986: 50).

As the focus of this article lies on prepositions governing the accusative and the dative case, some additional words on the acquisition of case marking in these contexts (step [v] in the listing above) are in order. While the accusative is acquired earlier than the dative in DPs outside of a PP, it has been suggested that the order of acquisition inside PPs is different (see Baten 2010 for a discussion). Since most prepositions in German govern the dative, it is arguably their default case (Wiese 2004: 20; Eisenberg 2013: 183; Sahel 2018: 27) and might be acquired earlier in DPs inside of a PP than in those outside of PPs (Baten 2010: 6). Other researchers argue that the accusative is first acquired in PPs (e.g., Mills 1985), while still others suggest that both cases are acquired almost simultaneously in PPs (Meisel 1986; Klinge 1990). Given the complexity of the system, differences in accusative vs. dative acquisition order inside PPs do not come as a surprise. Especially also since many early acquired prepositions and particularly amalgamations of prepositions and articles (e.g., *mitm* → *mit dem* 'with the') are taken over as holistic formulas by learners. Hence, what may look like a canonical dative, may not be interpreted as such by the learner.

This brief excursion into acquisitional research underlines the fact that even in monolingual L1 acquisition, speakers of German are confronted with obstacles concerning the morphosyntactic realization of case. For HSs of German, additional interference in form of cross-linguistic influence from their ML has to be taken into account. Moreover, phonetic distinctions between case paradigms in spoken German (cf. Table 1) are subtle and not easily discernible due to assimilation and lack of stress (e.g., Szagun 2004), resulting in increased acquisition difficulty, especially for HSs who usually receive limited written input in the heritage language (HL).

2.2 Case marking in heritage speakers

HSs are bilinguals who acquire a family language at home, the HL, while living in an environment where another language has majority status (Pascual Y Cabo & Rothman 2012). In the context of German as a HL, the term *heritage speaker* is often used to refer to older speakers of German language islands with a long history, who are among the third, fourth, or fifth generation of speakers and who experienced extensive periods of language contact. In contrast, the data analyzed here stem from second-generation immigrant, thus first-generation HSs who are

[6] This can be attributed to the fact that children below age three do not regularly use ditransitive verbs with all their arguments (Tracy 1986: 59).

not part of a larger HL speaking community. They predominantly use the HL within the immediate family or even just a single family member, which makes them speakers of "Tiny Language Islands" (Tsehaye et al. 2025).

In the HS group under discussion, the ML is English. English predominantly encodes grammatical relations via linear order and prepositions while German expresses them through inflections. Within the English DP, only subsets of pronouns have diachronically maintained overt distinctions between common case, i.e., subject case and (in)direct object case, and the genitive, i.e., possessive case. While the genitive is marked on nouns, other cases (nominative vs. non-nominative) only have overt exponents on pronouns. It is thus remarkable that – regardless of the contrast between German and English and especially against the backdrop of HL acquisition – HSs of German are aware that German DPs need to be morphologically marked for case in articles and prenominal modifiers.

German furthermore uses morphological case in combination with prepositions to mark semantic contrasts between place and path. English PPs do not overtly draw this distinction. Thus, analyses on case marking in DP complements of prepositions need to account for the possibility that the morphological encoding of case is not the sole factor that challenges HSs but also the semantic encoding of prepositions. Influenced by a preference for a bi-unique form-function mapping, HSs' prepositions may differ semantically due to language contact.

Previous research on case marking in HSs and the non-canonical variation encountered therein has shown that reduced exposure to the HL – especially in written domains – and decreasing opportunities for its use can result in "simplification and overgeneralization of complex morphological patterns" (Montrul 2011: 171). Overgeneralization can emerge as overregularization and overmarking of specific forms. *Overregularization* can be understood as the overapplication of unmarked forms, i.e., nominative and accusative, and *overmarking* as overapplication of marked forms, i.e., dative and genitive (e.g., Polinsky 2018: Chapter 5; Putnam et al. 2021: 616–618). Overmarking can be seen as the consequence of a tendency to increase transparency and perceptual salience (Polinsky 2018: 166).

In research on language islands, case reduction in morphologically rich languages such as German has been attributed to transfer resulting from language contact with morphologically impoverished languages such as English (Boas 2016). Counterexamples for this line of argumentation come from research on typologically equally rich languages where HSs also show reduced case inflections in their HL (e.g., Rosenberg 2005 for varieties of heritage German across the globe; Leisiö 2006 for HSs of Russian in Finland). Consequently, the reduction in case marking paradigms – or even case loss – might be the result of "internally induced language change", as, at least in German, there is "a lasting development from synthetic to analytic structures"

(Rosenberg 2005: 229).[7] Further reasons for non-canonical morphological variation in HSs were sought in input frequency, avoidance of ambiguity, and a preference for uniformity and simplicity (Polinsky 2018: Chapter 5). Especially the last point has been interpreted as an indication that HSs favor "one-to-one" form-function mappings (Polinsky 2018: 184) which, particularly in German, do not pertain.

As previously mentioned, studies on speakers of German language islands have shown a decrease or even loss of certain case paradigms, especially for the dative case. This was reported for case marking in DP complements of single-case as well as two-way prepositions. Studies on Texas German (e.g., Boas 2009b: Chapter 5) showed a decrease in dative use and overgeneralization of accusative forms with two-way prepositions in contexts canonically requiring the dative. This pattern intensified diachronically, so that speakers of Texas German completely abandoned the dative in these contexts. Such dative reduction – or accusative overregularization – can be interpreted as a functional shift from specific two-way prepositions to single-case prepositions.

Interestingly however, dative overgeneralization was also observed with specific two-way prepositions in canonically accusative contexts (Boas 2009a, 2009b: 197–202; Boas 2016). This can be traced back to patterns of overmarking. As *-em* suffixation exclusively appears in the dative paradigm in German, it allows speakers to avoid ambiguity or underspecification (Polinsky 2018: 166; Putnam et al. 2021: 619). Since English does not have a morphological dative, the argument that bilingual speakers "amplify[…] the differences between their two languages" is further supported (Polinsky 2018: 135).

Variation in HSs' case morphology is naturally also a result of the input. The initial settlers of German language islands usually "imported" their homeland dialectal variety of German (e.g., Low German varieties in Wisconsin, Volga German dialects in Kansas, Palatinate German in Pennsylvania, Hunsrückisch in Brazil etc.). Therefore, variation existing in the input is an additional reason for differences in the case marking system of diasporic German when compared to Standard German (see, amongst many others, Rosenberg 2005, 2020; Boas 2009a, 2009b; Yager et al. 2015). In the speaker population under consideration, dialectal influence was not expected to play a major role due to two reasons. First, only two participants reported that a dialect of German was spoken in their house. A reason for this small number could certainly be that the participants are not aware of the fact that they receive and speak a dialectal variety of German. However, and this brings me to my second reason, I did find considerable amounts of dative marked DPs in the data as will be illustrated in the next section. This suggests that the speakers

[7] Development from synthetic to analytic structures can, for example, be seen in the gradual loss of morphological case marking on German nouns. See also Putnam et al. (2021: 628) for a comment on the "shift to analytical forms" in the morphology of fusional languages.

must have received dative forms in their input. Therefore, we can expect a case system that is close to the Standard German case system for this specific group of HSs.[8]

While increased non-canonical variation in case marking in HSs has been amply documented, scholars emphasize that such variability or the reduction of inflectional paradigms may be due to individual speakers and should not be generalized across all speakers (this is also true for other linguistic areas of investigation). It is therefore of paramount importance to account for inter- and intra-individual variation in investigations of case marking. Thus, the analyses reported here will be performed on three levels: 1) inter-individual variation across HSs, 2) intra-individual variation within HSs, and 3) inter- and intra-individual variation in a subset of HSs, more specifically, in three siblings.

Looking at HSs growing up in the same family provides a unique opportunity to control for extra-linguistic aspects, such as upbringing, parental education, visits to the home country, etc. However, effects of sibling order should be considered (Shin 2002; Bridges & Hoff 2014; Aalberse et al. 2019). First-born children are more likely to receive direct input from adults compared to younger siblings. In HL contexts, younger siblings usually receive less input in the HL and have fewer production opportunities in the HL because older siblings, friends, and sometimes gradually also parents predominantly use the ML. Nevertheless, the analysis of sibling data helps us gain insights into variation and heterogeneity within a more "contained" group of HSs.

On the basis of the findings outlined in this section and with the help of the current data, I now investigate the effect of preposition type on canonical case marking (RQ1), the canonicity of accusative and dative morphology in DP complements of two-way prepositions (RQ2), and observable patterns of non-canonicity in DP complements of single-case prepositions (RQ3) to contribute towards a more comprehensive picture of case marking in first-generation HSs.

[8] It should be pointed out that the German-speaking parents of our participants, while possibly speaking a dialectal variety of German, were all literate in Standard German (one mother was even a German teacher). Apart from differences in generation, input, and acquisition outcome, the HSs in this study differ from German speakers of language islands with respect to their historical and sociolinguistic background. Our HSs (and their families) did not immigrate to the United States due to racism or religious persecution. Furthermore, the HSs in this study are not part of an active German-speaking community and therefore receive(d) little exposure to the HL other than from their immediate family. We are thus dealing with a different population of German immigrants.

3 Method

3.1 Participants

I investigated the productions of 61 adolescent speakers of German (mean age = 16.1, SD = 1.35, 32 females) divided into 29 HSs[9] (mean age = 15.6, SD = 1.57, 12 females) and 32 MSs (mean age = 16.6, SD = 0.91, 19 females). HSs grew up speaking German with at least one German-speaking parent in the household and were either born in the United States or moved there during early childhood. Apart from four HSs who attended bilingual schools for certain periods, the HSs in this study did not receive regular bilingual education but may have received varying degrees of exposure to formal education via "Saturday and Sunday schools", for instance. They may additionally have participated in German-speaking leisure activities and some reported that they paid (semi-)regular visits to Germany. MSs were defined as speakers whose L1 (in this case German) was the only language spoken at home but who might have learned further languages through foreign language education. The data used is openly accessible via the RUEG corpus (Wiese et al. 2021).

3.2 Stimulus material and elicitation procedure

To collect the data, I used the Language Situations methodology (Wiese 2020), designed to elicit controlled, comparable, and quasi-naturalistic productions across communicative situations. The participants were asked to imagine themselves witnesses of a minor car accident, which they were shown in a stimulus video, and to recount the events observed. Since the scenes reported on showed various animate protagonists (e.g., people, a dog) and objects (e.g., vehicles, a ball) moving on(to) grounds and along paths, the use of case marking to distinguish semantic interpretations according to the events observed could be studied.

The participants' narrations were elicited in two modes (spoken vs. written) distinguishable according to formality (formal vs. informal). In the spoken mode, participants were asked to recount the events observed in a voice message to a police eyewitness hotline (formal) and a voice message to a friend over an instant messenger (informal). In the written mode, they were asked to provide a written statement to the police (formal) and to send a text message to a friend via an instant messenger (informal). This resulted in a total of four narrations per speaker. The participants watched the video three times in total, twice in the first formality setting, once in the second formality setting. HSs took part in two sessions – one in their ML and one in their HL – with three to five days in between to minimize priming effects. MSs only took part in one

[9] The age of one participant was not recorded; therefore, the mean and standard deviation for the HS group was calculated for 28 participants only.

session. The order of language sessions, modes, and formality was counterbalanced across participants. Upon completion of the elicitation, participants filled out an online questionnaire where they provided information about their linguistic and social background.[10]

3.3 Annotations

The data selected for this article stem from the RUEG-DE-CGNP-2023-05-04 subcorpus, which contains transcriptions of spoken and written narrations. In the corpus, participant productions are presented on various tiers, specifically created to investigate phenomena across linguistic domains. All productions contain a *dipl*(omatic) and a *norm*(alized) tier. The *dipl* tier includes transcriptions of the participants' productions in their "raw" form including production phenomena, such as capitalization and spelling errors, hesitations, and truncated forms. In the *norm* tier, the transcriptions were normalized to standard orthography of reference.[11]

For the analysis of case marking, information from two additional tiers was accessed, which I created for this purpose: *canon* and *canon:Case* (cf. Table 2). To determine how many morphologically (non-)canonical DPs were produced, I needed a *tertium comparationis* to distinguish between DPs that were actually produced by the speakers in *norm* and DPs in their canonical form regarding case according to Standard German grammar.[12] Therefore, the *canon* tier was created, which presents canonical DPs regarding case inflections. If speakers already produced canonical DPs in *norm*, the content was simply duplicated in *canon*. If not, as is the case in the sentence *Der hat mit ein Ball gespielt...* ('He played with a ball...', see example DP Table 2), the productions were corrected in *canon*. In a second step, the productions in *canon* were annotated for the respective case on the *canon:Case* tier.

To create the datasets for the quantitative analyses, I searched the corpus for single-case prepositions and their adjacent DPs on the *canon* tier. For two-way prepositions, I additionally specified the case of the adjacent DP to differentiate between two-way$_{ACC}$ and two-way$_{DAT}$. I focused on the ten most frequent prepositions within and across speaker groups. HSs and MSs overlapped in nine out of ten prepositions. HSs additionally used *hinter* 'behind' amongst their ten most frequent prepositions and MSs additionally used *um* 'around, to, about', resulting in the

[10] The questionnaire for adolescent participants can be accessed via https://osf.io/x64tv/?view_only=2ef50d91a21c4dfda9dddbfde376c22f (25 July 2025).
[11] The complete annotation guidelines can be accessed via https://korpling.german.hu-berlin.de/rueg-docs/standalone/cgnp-morphology/ (26 July 2025).
[12] Standard grammar as a base of comparison for case marking behavior in HSs is problematic (Bousquette & Putnam 2020; Łyskawa & Nagy 2020). In this analysis, equal treatment of both speaker groups was ensured by comparing all productions to Standard German norms, thus also putting contemporary productions of MSs of German into perspective. For the annotations, the DUDEN (2016) was used as reference work.

analysis of eleven prepositions.[13] In general, the corpus comprises a relatively small number of preposition types as all participants produced four narrations based on the same stimulus video and oftentimes used similar expressions to do so. This, however, serves as an asset for the following analyses as it allows to pinpoint emerging trends and patterns in case morphology in connection with the semantic reading of the PP. The analyses are based on 2112 DP complements of prepositions, which I subdivided into the three datasets[14] according to preposition types. For each preposition type in each dataset in Table 3, the semantic classification, following the categorization by Zwarts (2006), is indicated.

Table 2: Annotation tiers for the analysis of case marking

Annotation tier	**Content**					
dipl	*Der*	*hat*	*mit*	*ein*	*Ball*	*geschpield …*
norm	*Der*	*hat*	*mit*	***ein***	***Ball***	*gespielt …*
canon	*Der*	*hat*	*mit*	***einem***	***Ball***	*gespielt …*
canon:Case				***Dat***	***Dat***	

Each dataset contains entries for individual DPs governed by the respective preposition including five tokens preceding and following the DP to ensure sufficient context. For each DP, I exported the *norm*, *canon*, and *canon:Case* entry and annotated the DP as either canonical (i.e., no correction from *norm* to *canon*) or non-canonical (i.e., correction from *norm* to *canon*). Since the corpus includes spoken productions, there are instances of phonologically reduced determiners in accusative contexts (e.g., *auf* ***ein***[***en***] *Parkplatz*, 'into a parking lot'). In such cases – nine in total – a clear categorization as (non-)canonical is phonetically almost impossible as has been previously pointed out, which is why they were categorized as miscellaneous and not included in the analyses.[15] Canonical DPs were coded as 0, non-canonical DPs as 1, miscellaneous DPs as 2, and the calculations in Section 4 are based thereupon.

As indicated, canonical case marking in two-way prepositions is semantically conditioned by the context, in this case, our stimulus video. This was used as basis to determine whether the DP complement of a two-way preposition should be realized in the accusative or the dative, i.e., whether a motion event should be understood as locative or directional. If a participant, for instance, produced (3a) instead of (3b), the sentence was annotated as non-canonical since the ball rolled from the sidewalk onto the street in the video.

[13] This includes amalgamations of prepositions and articles (e.g., *aufm* → *auf dem*).
[14] All datasets can be accessed via https://osf.io/x64tv/ (29 July 2025).
[15] See Szagun (2004) for comments on phonological discriminability of case marked determiners in German.

Table 3: Preposition type and semantic classification across datasets

Dataset 1: single-case (N=829)		**Dataset 2: two-way$_{ACC}$** (N=639)		**Dataset 3: two-way$_{DAT}$** (N=644)	
aus$_{DAT}$ source	'out'	*auf*$_{ACC}$ goal	'into', 'onto'	*auf*$_{DAT}$ place	'in', 'on'
von$_{DAT}$ source	'of'	*an*$_{ACC}$ goal	'on'	*an*$_{DAT}$ place	'on'
um$_{ACC}$ route	'around', 'to', 'about'	*hinter*$_{ACC}$ goal	'behind'	*hinter*$_{DAT}$ place	'behind'
zu$_{DAT}$ goal	'to'	*in*$_{ACC}$ goal	'in'	*in*$_{DAT}$ place	'in'
mit$_{DAT}$ instrumental/ comitative/ manner/ possessive	'with'	*über*$_{ACC}$ goal	'across'	*über*$_{DAT}$ place/route	'above'
		vor$_{ACC}$ goal	'in front of'	*vor*$_{DAT}$ place	'in front of'

(3) a. *Der Ball ist* [*auf* [***der Straße***]$_{DP}$]$_{PPlocative}$ *gerollt.*
the ball is on the.DAT street rolled
'The ball rolled on the street.'

b. *Der Ball ist* [*auf* [***die Straße***]$_{DP}$]$_{PPdirectional}$ *gerollt.*
the ball is onto the.ACC street rolled
'The ball rolled onto the street.'

4 Results

Table 4 illustrates the results for DP complements across speaker groups and preposition types. In order to account for possible effects of production mode, with written productions allowing the participants as much planning time as needed to accomplish the task, the absolute numbers for non-canonical DPs in the written mode are provided as well. For HSs, the comparison between single-case and two-way prepositions shows fewer non-canonical DPs after single case (26.0 %) than after two-way prepositions (mean percentage of two-way$_{ACC}$ and two-way$_{DAT}$: 29.2 %). Additionally, the comparison of non-canonical productions across two-way prepositions shows fewer non-canonical DPs after two-way$_{DAT}$ (24.3 %) than after two-way$_{ACC}$ (34.1 %). Similar trends, albeit with considerably lower frequencies, can be found in MSs: less non-canonical case marking after two-way$_{DAT}$ (1.2 %) than after two-way$_{ACC}$ (2.2 %). Hence, preposition types can be ordered as two-way$_{DAT}$ < single-case < two-way$_{ACC}$ with decreasing canonicity

across speaker groups. The numbers in Table 4 furthermore show that in the domain of single-case prepositions, HSs produced more non-canonical DPs in the spoken mode. Across two-way prepositions, higher numbers of non-canonically marked DPs were found in the written mode in HSs. MSs show equal amounts of non-canonically marked DPs across production modes in the domain of single-case prepositions. In DP complements of two-way$_{ACC}$, more DPs were non-canonically produced in the written mode by MSs, and in the domain of two-way$_{DAT}$, MSs show more non-canonically marked DPs in the spoken mode. On the basis of these arguably slight differences in DP canonicity across production modes, no statement about the absence of time constraint in written productions or the cognitive pressure connected to immediate spoken responses on DP canonicity can be made.

Table 4: DP complements across speaker groups and preposition types

	HSs$_{total}$	**HSs$_{non\text{-}canon}$**	**MSs$_{total}$**	**MSs$_{non\text{-}canon}$**
Single-case	277	72 (26.0 %) 32 in written	552	10 (1.8 %) 5 in written
Two-way$_{ACC}$	223	76 (34.1 %) 47 in written	416	9 (2.2 %) 5 in written
Two-way$_{DAT}$	226	55 (24.3 %) 29 in written	418	5 (1.2 %) 2 in written

Next, I looked at DP complements of individual prepositions across preposition types. Table 5 illustrates the results for DP complements of single-case prepositions. Across speaker groups, *mit* 'with' was the most frequent preposition as well as the one with the highest proportion of non-canonical DPs in HSs. An in-depth analysis of non-canonical DP complements of the preposition *mit* shows that among the 43 non-canonical DPs, 16 (37.2 %) were produced by two individuals, each producing eight non-canonical DPs. The remaining 27 DPs were distributed among the other 12 HSs who also produced non-canonical DPs with this preposition. This is indicative of the high inter-individual variation within HSs, an observation I return to below (cf. Figure 1).

Moving on to two-way prepositions, Table 6 shows the results for DP complements of two-way$_{ACC}$. Within HSs, *in* 'in' is the most frequent preposition, while *auf* 'onto' is the most frequent one in MSs. The large difference between HSs and MSs in their usage of *auf* and *in* can be attributed to language contact with English. In English, *in* is the canonical preposition to describe where the events in the stimulus video took place, i.e., 'in the parking lot', whereas *auf* would be the canonical preposition in German. The use of *in* in *auf* contexts was not annotated

as non-canonical seeing as both prepositions can govern the accusative.[16] Table 6 additionally shows that *an* 'on' is the least frequent preposition across speaker groups, resulting in exclusively non-canonical DPs in HSs.

Table 5: DP complements of single-case prepositions across speaker groups

	HSs_{total}	$HSs_{non\text{-}canon}$	MSs_{total}	$MSs_{non\text{-}canon}$
aus$_{DAT}$	36	4 (11.1 %)	47	0 (0.0 %)
mit$_{DAT}$	121	43 (35.5 %)	281	4 (1.4 %)
um$_{ACC}$	14	0 (0.0 %)	29	1 (3.4 %)
von$_{DAT}$	64	15 (23.4 %)	86	2 (2.3 %)
zu$_{DAT}$	42	10 (23.8 %)	108	3 (2.8 %)

Table 6: DP complements of two-way$_{ACC}$ prepositions across speaker groups

	HSs_{total}	$HSs_{non\text{-}canon}$	MSs_{total}	$MSs_{non\text{-}canon}$
an	4	4 (100 %)	4	0 (0.0 %)
auf	40	14 (35.0 %)	252	6 (2.4 %)
in	121	48 (39.7 %)	76	2 (2.6 %)
vor	18	5 (27.8 %)	23	1 (4.3 %)
über	40	5 (12.5 %)	61	0 (0.0 %)

A comparison of the distribution of *an* PPs in two-way$_{ACC}$ and two-way$_{DAT}$ (cf. Table 7 for results on DP complements of two-way$_{DAT}$) shows that both speaker groups use *an* more frequently in dative contexts. Additionally, HSs show fewer non-canonical *an* PPs in dative contexts. This can be indicative of a reinterpretation of *an* from a two-way preposition to a single-case preposition in HSs and a change in the semantics of *an* to exclusively present a locative reading, more precisely, the semantic categorization of place.

[16] In the HS data, *Parkplatz* 'parking lot' occurs 32 times with the preposition *in* (e.g., *Er ist **in** den Parkplatz gefahren.* 'He drove into the parking lot.').

Table 7: DP complements of two-way$_{DAT}$ prepositions across speaker groups

	HSs_{total}	$HSs_{non\text{-}canon}$	MSs_{total}	$MSs_{non\text{-}canon}$
an	27	3 (11.1 %)	80	1 (1.3 %)
auf	65	22 (33.8 %)	178	2 (1.1 %)
hinter	38	10 (26.3 %)	36	0 (0.0 %)
in	85	18 (21.2 %)	97	2 (2.1 %)
vor	8	0 (0.0 %)	27	0 (0.0 %)
über	3	2 (66.7 %)	–	–

As a last step in the comparison of single-case and two-way prepositions, I investigated the inter-individual variation in HSs (cf. Figure 1). I therefore calculated the percentages of non-canonical DPs (x-axis) of individual speakers (y-axis) for each preposition type (three columns). I additionally calculated the mean percentages of non-canonical productions by each speaker across preposition types and divided the speakers into three subgroups: speakers with low levels of non-canonicity (≤ 25 %, green dots), speakers with medium levels of non-canonicity (25 %–60 %, yellow dots), and speakers with high levels of non-canonicity (≥ 60 %, red dots). 13 speakers showed low levels of non-canonicity across prepositions. Out of those, three speakers produced exclusively canonical DPs. Nine speakers displayed medium levels of non-canonicity, and seven speakers showed high levels of non-canonicity. No speaker produced exclusively non-canonical DPs. Among the 13 speakers who showed low levels of non-canonicity, three received bilingual education,[17] but only one was amongst the speakers who exclusively produced canonical DPs. Additionally, eleven speakers in this subgroup indicated that both their parents speak German at home. Among the nine speakers who exhibited medium levels of non-canonicity, one received bilingual education and four lived with two German-speaking parents. Among the seven speakers who displayed high levels of non-canonicity, only two had two German-speaking parents.[18]

To investigate the realization of non-canonical productions and to detect patterns of non-canonicity in HSs, non-canonical DP complements of single-case prepositions were analyzed. HSs produced a total of 72 non-canonical DP complements of single-case prepositions (cf. Table 4).

[17] This analysis only highlighted bilingual education (i.e., different subjects taught in the HL) and not formal education in the HL in general (i.e., HL classes), as bilingual education was assumed to lead to considerably higher exposure to the HL compared to individual lessons in the HL or Saturday and Sunday schools.

[18] As commented on by one anonymous reviewer, it would be beneficial to calculate statistical correlations between the speakers of each subgroup. Given the small sample size, this was not performed as I merely wanted to illustrate possible patterns in the heterogeneous speaker population under consideration. I would also suggest that if future research were to statistically corroborate the observed patterns, the data should come from experimental studies or grammaticality judgment tests.

Since none of them occurred after the preposition *um* 'around, to, about', analyses were performed on the other four prepositions which canonically govern the dative. Table 8 illustrates the most frequent patterns. Most non-canonical DP complements of single-case prepositions fall under the category *underspecification*, i.e., DPs that are morphologically not overtly marked for case. The second pattern is -(*e*)*n* suffixation in canonically -(*e*)*m* contexts. In a third group, instances of -(*e*)*m* suffixation on the determiners of feminine nouns are subsumed. The remaining 16 non-canonical DPs which were not included in Table 8 could not be unequivocally placed in any of the three patterns.

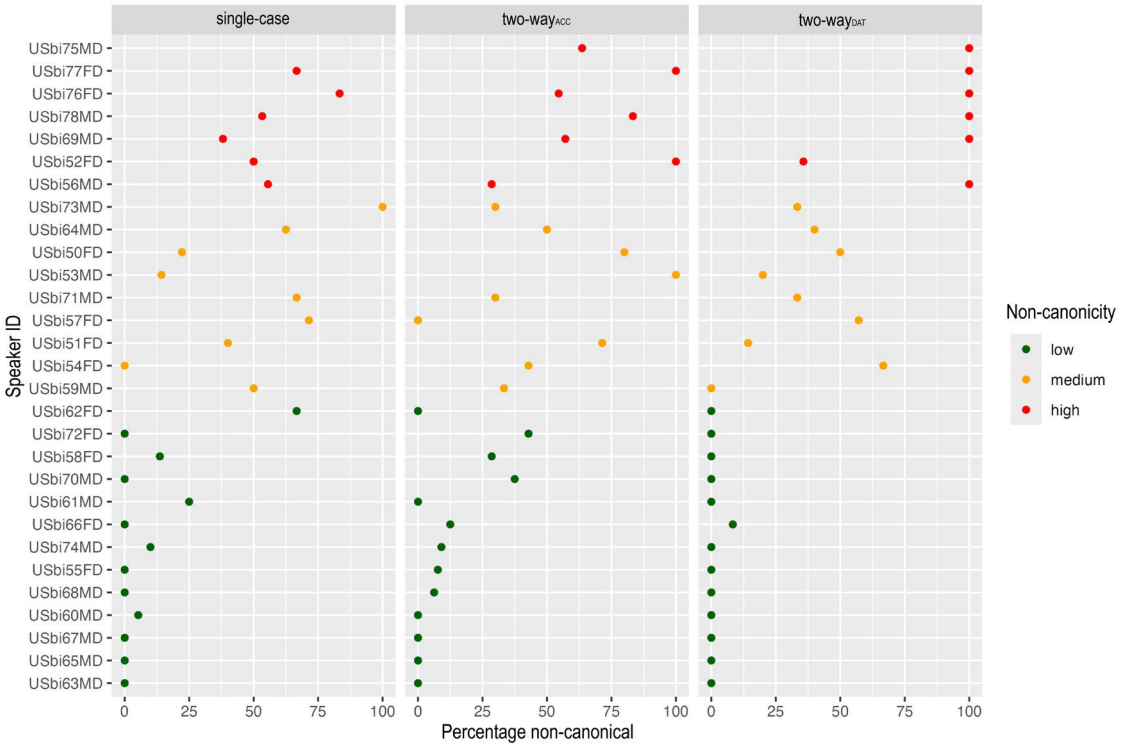

Figure 1: Percentages of non-canonical DP complements across individual speakers and preposition types

The distribution of non-canonical patterns across production modes shows that underspecification occurs more in the spoken mode, -(*e*)*n* suffixation is almost equally distributed across spoken and written productions, and -(*e*)*m* suffixation appears more in the written mode. Clearly, the tasks differed in planning and monitoring time available (see also Tsehaye et al. 2025). Therefore, in their spoken productions, participants might experience higher monitoring

demands which could play a role in the explicit marking of case on DP exponents.[19] Conversely, the written productions, which were untimed, led to explicit suffixation, which in this particular case resulted in overmarking of feminine DPs.

Table 8: Patterns of non-canonical DP complements of single-case prepositions

Pattern	Occurrences	Example clause
Underspecification	31 (43.1 %) 11 in written	*mit **ein Ball** gespielt* 'played with a ball' (canonical: ***einem***)
-(*e*)*n* suffixation	17 (23.6 %) 9 in written	*die Frau mit **ihren Hund*** 'the woman with her dog' (canonical: ***ihrem***)
-(*e*)*m* suffixation	8 (11.1 %) 6 in written	*aus **dem Hand** gefallen* 'fell out of the hand' (canonical: ***der***)

I want to emphasize that the last pattern illustrated in Table 8 needs to be interpreted with caution due to two reasons. Not only is it the pattern with the least instances but it also specifically includes the variable of gender. While the focus of this article does not lie on gender, I want to illustrate its potential effects on the appearance of -(*e*)*m* suffixation. The eight instances in this pattern were produced by four individuals. To investigate potential effects of canonical gender marking, an in-depth analysis of DPs with the four canonically feminine head nouns that appeared in this pattern (i.e., *Hand* 'hand', *Familie* 'family', *Frau* 'woman', *Straße* 'street') was performed.

The DPs that were produced with these specific head nouns were analyzed across narrations and cases. The first participant (USbi64MD) produced patterns of non-canonical -(*e*)*m* suffixation with the noun *Hand* 'hand'. Across narrations, three *Hand* DPs were produced, all of which occurred in the dative with the definite article *dem*. Hence, no statements about the canonicity of the gender of *Hand* can be made. The second participant (USbi74MD) showed non-canonical -(*e*)*m* suffixation with the noun *Familie* 'family'. Across narrations, five *Familie* DPs were found. Four *Familie* DPs were canonically realized for gender, two in the nominative and one in the accusative. Two *Familie* DPs were realized in the dative – one canonically and one non-canonically. These results support the fact that this speaker is capable of canonically inflecting *Familie* for gender and that we might be dealing with a performance error in the dative paradigm. The third speaker (USbi76FD) added non-canonical -(*e*)*m* suffixation on the noun *Frau* 'woman'. A total of eleven *Frau* DPs were produced across narrations. Seven non-canonical *Frau* DPs appeared in the dative. One *Frau* DP was canonically produced in the accusative and two in the

[19] The increased cognitive demands of (semi-) spontaneous spoken productions are also visible in hesitation phenomena, word searches, and repairs in the present data.

nominative. Only one *Frau* DP was non-canonically produced in the nominative (e.g., **das Frau*). Given the fact that this speaker canonically produced three *Frau* DPs in the nominative and the accusative, these results can be taken as evidence that this speaker is able to canonically inflect *Frau* for gender in German. The fourth speaker (USbi78MD) produced patterns of non-canonical -(*e*)*m* suffixation with the nouns *Straße* 'street' and *Frau*. Across narrations, 21 *Straße* DPs and 11 *Frau* DPs were produced. All *Straße* DPs were non-canonical, regardless of the case they were produced in. With the noun *Frau*, three DPs were canonically produced in the accusative. However, the indefinite determiner *eine* was used in its truncated form *ne* in these cases. Apart from these three instances, the other *Frau* DPs were non-canonically produced in the nominative, accusative, and dative. In the productions of this speaker, non-canonical gender marking needs to be included as an additional factor for the appearance of this pattern.

The in-depth analysis of this pattern again highlights the intricacy of case marking in German and the encoding of several functions onto a single exponent. Apart from the hypothesis that HSs might seek to achieve increased perceptual saliency with the help of -(*e*)*m* suffixation, these results are indicative of the fact non-canonical gender marking may be an additional factor for the appearance of this pattern, especially in the case of the fourth speaker (USbi78MD).

As an additional investigation of the extent of HS heterogeneity, I now shift the focus to a subgroup of HSs. In the following, I discuss the data of three siblings: two brothers (18 and 14 years old) and one sister (17 years old).[20] All siblings considered themselves native speakers of both English and German, none of them received bilingual education, and all three siblings reported that their parents – the mother being a German immigrant and the father American – speak both languages at home. In the online questionnaire, all three siblings indicated that they visit Germany at most once a year. Regarding media usage in the HL, the oldest brother indicated that he never[21] watches movies or videos in German but sometimes listens to German music. He sometimes uses German for messenger communication and sometimes reads in German. The sister reported that she never watches movies or videos in German, nor does she listen to German music. However, she sometimes uses German for messenger communication and sometimes reads in German. She furthermore stated that she mostly speaks German with her mother unless they speak in front of her friends, which is when they switch to English. She also speaks exclusively German with her grandparents in Germany. With her American grandfather in the United States who speaks and understands German, she also exclusively speaks English. The youngest brother indicated that he sometimes watches movies or videos in German and sometimes listens to German music. He did not provide any answers regarding HL use in instant messaging contexts or reading. He furthermore reported that he speaks English and German to

[20] The participant codes under which the sibling data can be found in the RUEG corpus are: USbi74MD (Brother 1), USbi72FD (sister), and USbi73MD (Brother 2).
[21] In the online questionnaire's section on language use in "media and leisure time", the participants had the following answer options: "often", "sometimes", and "never".

his grandparents in the United States but exclusively German to his grandparents in Germany. With his friends in Germany, he speaks German and with his friends in the United States, he speaks English. These reports underscore the fact that these HSs have no or very few German-speaking peers in their immediate vicinity. In the online questionnaire, the siblings also rated their HL proficiency in the areas of speaking, writing, reading, and listening on a five-point Likert scale which ranged from 1 (very easy) to five (very hard). For the oldest brother and the sister, the mean average across the four areas is two (i.e., easy) and for the youngest brother, three (i.e., medium). Table 9 shows the results for DP complements across siblings and preposition types.

Table 9: DP complements across siblings and preposition types

	Brother 1		**Sister**		**Brother 2**	
	total	**non-canon**	**total**	**non-canon**	**total**	**non-canon**
Single-case	30	3 (10.0 %)	12	0 (0.0 %)	3	3 (100.0 %)
Two-way$_{ACC}$	11	1 (9.1 %)	7	3 (42.9 %)	10	3 (30.0 %)
Two-way$_{DAT}$	13	0 (0.0 %)	15	0 (0.0 %)	6	2 (33.3 %)
All prepositions	54	4 (7.4 %) 2 in written	34	3 (8.8 %) 2 in written	19	8 (42.1 %) 4 in written

A first look at Table 9 reveals that the older siblings produced fewer non-canonical DPs than the younger brother. Additionally, the comparison of all DPs (canonical and non-canonical) shows that the oldest brother produced almost twice as many DPs as the sister and almost three times as many as the youngest brother.

A qualitative breakdown of these results shows that in the dataset of single-case prepositions, the oldest sibling produced three non-canonical DPs with the prepositions *mit* 'with', *zu* 'to', and *von* 'of'. Two of those, both in the spoken mode, show instances of non-canonicity in combination with plural marking in which the noun was not correctly marked for number in the dative (4a). In such cases, the complex interplay of several grammatical categories surfaces. Not only do plural nouns in the dative need to be overtly marked for case (i.e., *-n* suffixation if the plural form of the noun does not already end in *-n*), but plural marking in general needs to be correctly applied before case exponents can be attached (see also Myers-Scotton 2002: Chapter 3 for a distinction between early and late system morphemes in the 4-M model). In German, plural marking can be realized in various ways, depending on the properties of the noun such as gender and phonological aspects, amongst many others. Missing number inflection on the noun in dative paradigms has also been attested in other diasporic varieties of German (see, for example, Rosenberg 2016). The third non-canonical instance (4b) appears in the written mode and is a

mixture of -(*e*)*m* suffixation plus the amalgamation of the preposition *von* and the article *dem*, which is non-canonical for feminine nouns. One line of argumentation for this production can be that this specific speaker overcompensated with the transparent -(*e*)*m* dative suffixation while simultaneously producing the canonically inflected determiner *der* for feminine nouns in the dative (in this case not distinguishable from a genitive). At the same time, it cannot be ruled out that the non-canonical DP in (4b) is due to a typing error. In the group of two-way$_{\text{ACC}}$, one DP was non-canonically realized in the written mode after the preposition *in* 'in' (4c) resulting in a locative instead of a directional reading. Within two-way$_{\text{DAT}}$, only canonical DPs were produced.

(4) a. Spoken mode
mit ***ihren Lebensmittel*** (canonical: ***Lebensmittel-n***)
'with her groceries'

b. Written mode
der Vater vom ***der Familie*** (canonical: ***von***)
'the father of the family'

c. Written mode
der Hund gebellt hat und in ***dem Parkplatz*** *gerannt ist* (canonical: ***den***)
'the dog barked and ran in the parking lot'

The second sibling exclusively produced canonical DPs following single-case prepositions. Among two-way$_{\text{ACC}}$, she produced three non-canonical DPs, two in the written mode and one in the spoken mode. All DPs in the accusative context, canonical and non-canonical, are complements of the preposition *in*. It is therefore unlikely that the non-canonicity of these DPs is connected to the specific preposition. As a next step, the role of the noun in connection to non-canonicity was investigated. Two non-canonically produced DPs appeared with the noun *Straße* 'street' and one with the noun *Parkplatz* 'parking lot' (5a–b). While both *Straße* DPs are non-canonical (one in spoken and one in written mode), we do find canonical *in* PPs with *Parkplatz* in spoken productions of this speaker which illustrates intra-individual variation. These instances are, however, too scarce to investigate the role of production mode on canonicity.

(5) a. Spoken mode
ist nachm Ball in ***der Straße*** *rausgerannt* (canonical: ***die***)
'ran out in the street after the ball'

b. Written mode
das Auto das gerade in ***dem Parkplatz*** *reingefahren ist* (canonical: ***den***)
'the car that just drove into the parking lot'

Importantly, none of the scrutinized DPs are ungrammatical. They are, however, non-canonical regarding the semantics of the given context concerning a directional reading of the events. (5a) is especially noticeable as the participant encoded various path information not only in the *in*

PP but also with the help of the preposition *nach* 'after' and the verbal prefix *raus* 'out' of the participle *rausgerannt* 'ran out'. This, contrary to the dative *in* PP, implies a directional, hence, semantically canonical reading. One could argue that even though this participant did not manage to encode directional reading via case marking in this DP, she knew that the motions in the stimulus video contained the crossing of a boundary and used other linguistic means to indicate this. Among the group of two-way$_{\text{DAT}}$, all DPs were canonical.

The youngest sibling produced a total of three DPs in the domain of single-case prepositions, all of which were non-canonical. Two DPs occurred in the spoken mode and one in the written mode and all DPs were complements of the preposition *von* 'of'. Two of the three non-canonical DPs (6a/b) were morphologically underspecified and (6a) additionally illustrates non-canonical case marking in combination with plural marking. Unlike the oldest brother, this sibling did not only miss the *-n* suffixation on the noun but also used the underspecified determiner *die*. The third non-canonical DP shows *-(e)n* suffixation in canonically dative *-(e)m* contexts for masculine nouns (6c).

(6) a. Spoken mode
eins von ***die Autofahrer*** (canonical: ***den Autofahrer-n***)
'one of the drivers'

b. Written mode
eine Tüte von ***eine Frau*** (canonical: ***einer***)
'a woman's bag'

c. Spoken mode
von ***den Hund*** (canonical: ***dem***)
'of the dog'

d. Written mode
die Sachen sind auf ***der Straße*** *gefallen* (canonical: ***die***)
'the things fell on the street'

e. Written mode
sein Ball ist in ***der Straße*** *gerolled*[22] (canonical: ***die***)
'his ball rolled in the street'

f. Written mode
das Auto hinter ***das erste Auto*** (canonical: ***dem ersten***)
'the car behind the first car'

[22] Written productions were kept in their original orthography.

Among two-way$_{ACC}$, this participant produced three non-canonical DPs, two in the written mode and one in the spoken mode, after the prepositions *auf* 'on' and *in* 'in' (6d/e) and in combination with the noun *Straße* 'street', resulting in a locative instead of a directional reading. The same speaker, however, also shows intra-individual variation in the domain of two-way$_{ACC}$ as he produced two canonically marked DPs with the noun *Straße*, again with the prepositions *auf* and *in*. Both canonical and non-canonical *Straße* DPs occur in the spoken as well as in the written mode. Possible reasons for this intra-individual variation can be found by looking at the prepositions. Interestingly, this speaker uses *auf* and *in* only in the accusative context and not in the dative context. The oscillation between canonical and non-canonical *Straße* DPs could therefore be indicative of idiosyncratic restructuring by encoding directionality solely via the preposition, discarding further specification of directionality via morphological affixation. An alternative option could be that the speaker might not have conceptualized the situation in the video in the way that the ball rolls into the street (directional) but in the street (locative). This, however, does not seem feasible as he also canonically produced the phrase *auf die Straße gerollt* 'rolled onto the street'. Furthermore, a look into this speaker's English productions also revealed that he conceptualized the rolling of the ball as a directional motion by using the prepositions *into* and *across*. A final alternative could, of course, be that the encountered intra-individual variation in this speaker's *Straße* DPs needs be attributed to performance and nervousness.

Within two-way$_{DAT}$, two DPs were non-canonically realized after the preposition *hinter* 'behind' (6f), one in the spoken mode and one in the written mode. These instances fall under the pattern of underspecified DPs. The content of both non-canonically produced DPs is identical: the speaker produced *das Auto* 'the car' as the subject of the clause followed by *das Auto* as the object of the clause. A possible explanation for this might be priming effects of the first, nominal production of *Auto* with the definite article *das*.

5 Discussion

This study explored accusative and dative case marking in DP complements of prepositions in German. The intention was to investigate how this group of HSs (first-generation HSs, second-generation immigrants) fits previous case marking trends in HL research specifically within the domain of PPs and to account for individual differences in HSs. The first research question focused on differences in canonical case marking after single-case and two-way prepositions. The results show slightly fewer non-canonical DP complements of single-case prepositions than of two-way prepositions in the productions of HSs. Thus, the expectation that case marking after single-case prepositions results in higher canonicity due to their constraint on case marking options (i.e., each preposition governs exactly one case) is borne out.

Research Question 2 zoomed in on two-way prepositions and inquired whether participants produce more non-canonical DP complements of two-way prepositions in accusative or dative contexts. The results show that HSs produce fewer non-canonical DP complements of two-way

prepositions in dative than in accusative contexts. The same pattern is visible – with overall lower frequencies – in MSs. Hence, contrary to previous findings on older generations of HSs of German language islands, the HSs in this study actively – and over a third of them very canonically (cf. Figure 1) – produce the dative case. Thus, the reduction or leveling of morphological paradigms and the disappearance of the dative documented in research on German language islands and usually noted after several generations of immigration was not replicated for the HL data investigated in this study. At least not in the domain of two-way prepositions. This result is not surprising given the fact that I dealt with first-generation HSs. Their baseline, i.e., the German input provided by their immigrant parents, must have contained sufficient cues to make the dative detectable.

The third research question focused on potential patterns in HSs' non-canonical case marking in DP complements of single-case prepositions and was rooted in previous findings that show dative case reduction and accusative case overgeneralization. To address this subject-matter, quantitative and qualitative analyses of non-canonical DP complements of single-case prepositions were conducted. The results show three systematic patterns. Firstly, *underspecification* of DPs. Here, participants opted for a 'simplified' version of the DP by not attaching case-specific inflections. Secondly, -(*e*)*n suffixation* in canonically -(*e*)*m* contexts. This can be interpreted as accusative overregularization in canonically dative contexts. Thirdly, -(*e*)*m* overmarking on the determiners of feminine nouns. In the dative paradigm, both masculine and neuter determiners show -(*e*)*m* suffixation, while feminine determiners are marked with -(*e*)*r*. Hence, one explanation for this trend might be the predominant -(*e*)*m* suffixation for the dative paradigm and an extension of this suffix to determiners of feminine nouns. Additionally, participants could have chosen the more transparent and perceptually salient form to indicate the dative even if it came at the price of non-canonically marking the DP for gender. These results align with Polinsky's (2018) reports on preferences for increased perceptual saliency and overgeneralization, especially for phenomena that are only present in the HL. An alternative explanation for this pattern could be non-canonical gender marking of the canonically feminine nouns, which would shift the source for non-canonicity from case to gender. Additionally, the data show a few instances of non-canonical case marking in combination with plural marking. These instances were, however, too infrequent to be introduced as an additional pattern. The observed non-canonical patterns highlight the overall complexity of the inflectional paradigm in German and the syncretic interplay of case, gender, and number inflections.

Lastly, in order to take a closer look at intra- and inter-individual variation, the data of three siblings were analyzed. In this contained group of HSs, non-canonical DPs after single-case prepositions largely followed the patterns defined for the whole group of HSs. Within two-way prepositions, non-canonical productions could be traced back to idiosyncratic reinterpretations of specific two-way prepositions (e.g., *in* 'in', *hinter* 'behind', and *auf* 'on') to single-case prepositions. This was also visible in the distribution of non-canonical DP complements of the prep-

osition *an* 'on' across two-way$_{ACC}$ and two-way$_{DAT}$ in the whole HS group. While these distributions might indicate the onset of systematic restructuring of case marking after specific prepositions, the occurrences were too infrequent to corroborate it. Not only prepositions but also nouns showed systematic non-canonical variation patterns. The fact that the speakers produced canonical and non-canonical DPs with the same noun served as evidence for intra-individual variation. In-depth analyses of the sibling data thus revealed instances of intra-individual variation of canonical and non-canonical DPs on the one hand, possibly resulting from performance pressure, and instances of idiosyncratically systematic patterns of non-canonical DPs on the other hand. Altogether, the older siblings overall produced more DP complements and illustrated fewer non-canonical DPs than the youngest sibling. These results confirm previous findings on birth order effects in HSs' HL productions.

Regarding heterogeneity in HSs, the analyses additionally showed that while there is considerable in-group variation, individuals in the HS group can be subdivided into smaller groups which behave similarly (cf. Figure 1). The inclusion of number of German-speaking parents in the household co-occurred with inflectional canonicity as most of the speakers who produced low levels of non-canonicity had two German-speaking parents while those who showed high levels of non-canonicity predominantly only lived with one German-speaking parent. Bilingual education also seemed to have an effect as three out of the four individuals who received bilingual education were subsumed under the group that showed low levels of non-canonicity. Nevertheless, potential correlation of these parameters was not investigated, which is why this finding has to be interpreted with caution. Additional factors pertaining to heterogeneous productions in HSs need to be investigated. A potential next step would be to retrieve further sociolinguistic information of the participants of each subgroup. This could include information such as visits to the home country, extent of received formal education in the HL, or media usage in the HL, which should be used to outline individual speaker profiles in order to detect possible similarities between subgroups of HSs, as has been done in the in-depth analysis of sibling data.

In essence, the analyses performed have shown that non-canonical productions in HSs are neither arbitrary nor chaotic, thus supporting previous claims that HSs follow patterns which should be described as "tendential rather than categorical" (Polinsky 2018: 197) in terms of oversimplification and reduction (Polinsky 2018; Łyskawa & Nagy 2020). Despite mostly oral, oftentimes idiosyncratic, and phonologically reduced input, this group of first-generation HSs acquired and retained case marking in German. Importantly, they systematically use the spectrum of morphological exponents available in German. I therefore – admittedly informally formulated – argue that each participant in this study is equipped with the set of cards containing all ingredients needed to mark case in German. Depending on how these cards land once tossed up and subsequently sorted by individual speakers, the emerging way of marking case varies but the results throughout my analyses have shown that we can find trends which indicate intra-individual systematicity rather than arbitrariness and free variation.

Limitations of the research presented here include the relatively small participant number and sample size. Therefore, results must be interpreted with caution. While production mode was accounted for at various stages of the analyses, it should be systematically implemented across individual productions in a next step in order to make statements about its influence on case marking. Furthermore, analyses on inter- and intra-individual variation and especially the analysis of sibling data could have greatly benefited from the inclusion of an appropriate baseline, i.e., the parental input. While participants indicated HL use and conversation partners in the HL in the questionnaire, no actual baseline data could be taken into account as the parents of the participants were not included in the elicitations.

6 Conclusion

This paper investigated case marking in DP complements of prepositions in adolescent first-generation HSs and in adolescent MSs of German. More specifically, accusative and dative case inflections were quantitively and qualitatively analyzed across preposition types as well as across and within speakers. The aim was to investigate how the selected group of HSs ties in with previously discovered trends in case marking within the context of PPs in HSs of German language islands. Additionally, the extent of HS heterogeneity in the domain of case marking was investigated.

The results showed slightly less non-canonical case marking in DP complements of single-case prepositions than of two-way prepositions in HSs, showing that a restriction on case marking options leads to higher canonicity. Additionally, HSs and MSs produced fewer non-canonical DP complements in dative contexts than in accusative contexts. Hence, this study does not confirm previous findings which reported a general reduction or loss of the dative case in HSs. This can be traced back to the fact that the focus in this paper was on first-generation HSs of Tiny Language Islands, a so far neglected population. In-depth analyses of case marking in DP complements of single-case prepositions in HSs showed three systematic patterns leading to non-canonicity: morphological underspecification of the DP, overregularization of the accusative case, and overmarking of the dative case on feminine nouns. Throughout the analyses, HS productions showed high levels of heterogeneity. Yet, it was possible to split speakers into three subgroups on a continuum of low, medium, and high levels of non-canonical case marking which seemed to co-occur with the number of German-speaking parents at home. Unsurprisingly, canonicity was furthermore attested more in speakers who received bilingual education. Analyses of sibling data, which were more controlled in terms of extra-linguistic parameters still yielded considerable variation in line with birth order effects on HL competence. In conclusion, however, despite increased heterogeneity, the analyses in this article have shown that case marking is acquired, and more importantly retained, in first-generation HSs outside of heritage language islands. Additionally, non-canonical case marking variation within the domain

of PPs, albeit observable in HSs, is predominantly systematic, which, all things considered, is an impressive achievement and, hence, the best case scenario.

References

Aalberse, Suzanne, Ad Backus & Pieter Muysken. 2019. *Heritage languages: A language contact approach*. Amsterdam: John Benjamins. https://doi.org/10.1075/sibil.58.

Baten, Kristof. 2010. Die Erwerbssequenzhypothese: Theorie und Praxis des Kasuserwerbs. *Deutsche Sprache* 38. 43–69. https://doi.org/10.37307/j.1868-775X.2010.01.04.

Boas, Hans C. 2009a. Case loss in Texas German: The influence of semantic and pragmatic factors. In Jóhanna Barðdal and Shobhana L. Chelliah (eds.), *The role of semantic, pragmatic and discourse factors in the development of case*, 347–373. Amsterdam: John Benjamins. https://doi.org/10.1075/slcs.108.18boa.

Boas, Hans C. 2009b. *The life and death of Texas German*. Durham: Duke University Press.

Boas, Hans C. 2016. Variation im Texasdeutschen: Implikationen für eine vergleichende Sprachinselforschung. In Alexandra N. Lenz (ed.), *German abroad: Perspektiven der Variationslinguistik, Sprachkontakt- und Mehrsprachigkeitsforschung*, 11–44. Göttingen: Vienna University Press. https://doi.org/10.14220/9783737005975.11.

Bousquette, Joshua & Michael T. Putnam. 2020. Redefining language death: Evidence from moribund grammars. *Language Learning* 70(S1). 188–225. https://doi.org/10.1111/lang.12362.

Bridges, Kelly & Erika Hoff. 2014. Older sibling influences on the language environment and language development of toddlers in bilingual homes. *Applied Psycholinguistics* 35(2). 225–241. https://doi.org/10.1017/S0142716412000379.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris. https://archive.org/details/lecturesongovern0000chom, 5 August 2025.

Clahsen, Harald. 1984. Der Erwerb von Kasusmarkierungen in der deutschen Kindersprache. *Linguistische Berichte* 89. 1–31.

Czepluch, Hartmut. 1996. *Kasus im Deutschen und Englischen: Ein Beitrag zur Theorie des abstrakten Kasus*. Berlin: De Gruyter. https://doi.org/10.1515/9783110955309.

Duden. 2016. *Die Grammatik: Unentbehrlich für richtiges Deutsch*. 9th edn. Mannheim: Duden.

Eichinger, Ludwig M. 2014. Die Entwicklung der Flexion: Gebrauchsverschiebungen, systematischer Wandel und die Stabilität der Grammatik. In Deutsche Akademie für Sprache und Dichtung & Union der deutschen Akademien der Wissenschaften (eds.), *Reichtum und Armut der deutschen Sprache*, 121–170. Berlin: De Gruyter. https://doi.org/10.1515/9783110334739.121.

Eisenbeiss, Sonja, Susanne Bartke & Harald Clahsen. 2005. Structural and lexical case in child German: Evidence from language-impaired and typically developing children. *Language Acquisition* 13(1). 3–32. https://doi.org/10.1207/s15327817la1301_2.

Eisenberg, Peter. 2013. *Grundriss der deutschen Grammatik: Der Satz*. 4th edn. Stuttgart: Metzler.

Garzonio, Jacopo & Silvia Rossi. 2020. Variation in P: An introduction. In Jacopo Garzonio & Silvia Rossi (eds.), *Variation in P: Comparative approaches to adpositional phrases*, 1–16. Oxford: Oxford University Press. https://doi.org/10.1093/oso/9780190931247.003.0001.

Haspelmath, Martin. 2012. Terminology of case. In Andrej L. Malchukov & Andrew Spencer (eds.), *The Oxford handbook of case*, 1–13. New York: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199206476.013.0034.

Klinge, Swantje. 1990. Prepositions in bilingual language acquisition. In Jürgen M. Meisel (ed.), *Two first languages*, 123–154. Dordrecht: Foris.

Leisiö, Larisa. 2006. Genitive subjects and objects in the speech of Finland Russians. *Journal of Slavic Linguistics* 14(2). 289–316.

Łyskawa, Paulina & Naomi Nagy. 2020. Case marking variation in heritage Slavic languages in Toronto: Not so different. *Language Learning* 70(S1). 122–156. https://doi.org/10.1111/lang.12348.

Mcfadden, Thomas. 2004. The position of morphological case in the derivation: A study on the syntax-morphology interface. Philadelphia: University of Pennsylvania dissertation.

McFadden, Thomas. 2020. Case in Germanic. In Michael T. Putnam & B. Richard Page (eds.), *The Cambridge handbook of Germanic linguistics*, 282–312. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108378291.014.

Meisel, Jürgen M. 1986. Word order and case marking in early child language: Evidence from simultaneous acquisition of two first languages: French and German. *Linguistics* 24(1). 123–184. https://doi.org/10.1515/ling.1986.24.1.123.

Mills, Anne E. 1985. The acquisition of German. In Dan I. Slobin (ed.), *The crosslinguistic study of language acquisition*, vol. 1, 141–254. New York: Psychology Press. https://doi.org/10.4324/9781315802541.

Montrul, Silvina. 2011. Morphological errors in Spanish second language learners and heritage speakers. *Studies in Second Language Acquisition* 33(2). 163–192.

Myers-Scotton, Carol. 2002. *Contact linguistics: Bilingual encounters and grammatical outcomes*. New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198299530.001.0001.

Pascual Y Cabo, Diego & Jason Rothman. 2012. The (il)logical problem of heritage speaker bilingualism and incomplete acquisition. *Applied Linguistics* 33(4). 450–455. https://doi.org/10.1093/applin/ams037.

Polinsky, Maria. 2018b. *Heritage languages and their speakers* (Cambridge Studies in Linguistics 159). Cambridge: Cambridge University Press. https://doi.org/10.1017/9781107252349.

Putnam, Michael T., Lara Schwarz & Andrew D. Hoffman. 2021. Morphology of heritage languages. In Silvina Montrul & Maria Polinsky (eds.), *The Cambridge handbook of heritage languages and linguistics*, 613–643. Cambridge: Cambridge University Press.

Rosenberg, Peter. 2005. Language island research: The traditional framework and some sociolinguistic questions. In Peter Auer, Frans Hinskens & Paul Kerswill (eds.), *Dialect change: Convergence and divergence in European languages*, 221–235. Cambridge: Cambridge University Press.

Rosenberg, Peter. 2016. Regularität und Irregularität in der Kasusmorphologie deutscher Sprachinselvarietäten (Russland, Brasilien). In Andreas Bittner and Klaus-Michael Köpcke (eds.), *Regularität und Irregularität in Phonologie und Morphologie*, 177–218. Berlin: De Gruyter. https://doi.org/10.1515/9783110486094-010.

Rosenberg, Peter. 2020. The impact of variation, contact, and change on case morphology: What can we learn from language islands in the 'flood'? In Alexandra N. Lenz & Mateusz Maselko, *VARIATIONist linguistics meets CONTACT linguistics*, 51–92. Göttingen: Vienna University Press. https://doi.org/10.14220/9783737011440.51.

Sahel, Said. 2018. *Kasus*. Heidelberg: Universitätsverlag Winter.

Shin, Sarah J. 2002. Birth order and the language experience of bilingual children. *TESOL Quarterly* 36(1). https://doi.org/10.2307/3588366.

Slobin, Dan I. 2003. Language and thought online: Cognitive consequences of linguistic relativity. In Dedre Gentner & Susan Goldin-Meadow (eds.), *Language in mind: Advances in the study of language and thought*, 157–192. Cambridge: MIT Press.

Sorace, Antonella. 2011. Pinning down the concept of "interface" in bilingualism. *Linguistic Approaches to Bilingualism* 1(1). 1–33. https://doi.org/10.1075/lab.1.1.01sor.

Tracy, Rosemarie. 1984. Fallstudien: Überlegungen zum Erwerb von Kasuskategorie und Kasusmarkierung. In Hartmut Czepluch & Hero Janßen (eds.), *Syntaktische Struktur und Kasusrelation*, 271–313. Tübingen: Gunter Narr.

Tracy, Rosemarie. 1986. The acquisition of case morphology in German. *Linguistics* 24(1). 47–78. https://doi.org/10.1515/ling.1986.24.1.47.

Tsehaye, Wintai, Rosemarie Tracy & Johanna Tausch. 2025. Inter- and intra-individual variation: How it materializes in heritage German and why it matters. In Shanley E. M. Allen, Mareike Keller, Artemis Alexiadou & Heike Wiese (eds.), *Linguistic dynamics in heritage speakers: Insights from the RUEG group*, 141–177. Berlin: Language Science Press. https://doi.org/10.5281/zenodo.15056099.

Tsimpli, Ianthi M. 2014. Early, late or very late? Timing acquisition and bilingualism. *Linguistic Approaches to Bilingualism* 4(3). 283–313. https://doi.org/10.1075/lab.4.3.01tsi.

Wiese, Bernd. 2004. Über Lokalisationssysteme: Zur Struktur des Inventars der deutschen Lokalpräpositionen mit Berücksichtigung finno-ungarischer Lokalkasussysteme. Mannheim: Institut für deutsche Sprache manuscript. https://www.ids-mannheim.de/fileadmin/gra/texte/wi7.pdf, 4 August 2025.

Wiese, Heike. 2020. Language Situations: A method for capturing variation within speakers' repertoires. *Methods in Dialectology* (Methods) 16. 105–117.

Wiese, Heike, Artemis Alexiadou, Shanley E. M. Allen, Oliver Bunk, Natalia Gagarina, Kateryna Iefremenko, Esther Jahns, et al. 2021. RUEG corpus. Geneva: Zenodo. https://doi.org/10.5281/ZENODO.5808870.

Yager, Lisa, Nora Hellmold, Hyoun A. Joo, Michael T. Putnam, Eleonora Rossi, Catherine Stafford & Joseph Salmons. 2015. New structural patterns in moribund grammar: Case marking in heritage German. *Frontiers in Psychology* 6. 1–9. https://doi.org/10.3389/fpsyg.2015.01716.

Zimmer, Christian. 2020. Kasus im Namdeutschen. *Zeitschrift für germanistische Linguistik* 48(2). 298–335. https://doi.org/10.1515/zgl-2020-2004.

Zwarts, Joost. 2006. Case marking direction: The accusative in German PPs. *Chicago Linguistic Society* (CLS) 42(2). 93–107.