Research Article

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Prepositional phrases in German in Austria – identifying patterns of variation

Abstract: German in Austria is claimed to be shaped by wide-spread dialect use and historical language contact. In this context, variation in prepositional phrases (PPs) is frequently cited, but still underresearched. Three linguistic variables are particularly interesting: (1) preposition choice (p-choice), (2) case marking in PPs and (3) preposition–determiner contractions. The present study aims at identifying linguistic and sociolinguistic – including regional – patterns of variation in the realization of PPs with two-way prepositions in German in Austria on the basis of natural production data including formal and informal registers from urban and rural adults of different age groups and different socioeconomic backgrounds living in Bavarian regions of Austria. The data were compared against the German standard variety from Germany to identify all constructions (possibly) specific for German in Austria. Results indicate that p-choice (particularly in directed motion constructions) shows mostly regional effects: South Bavarian varieties are characterized by preposition drop, whereas in the other regions, the preposition *auf* 'on(to)' seems overrepresented. However, case marking is more dependent on sociodemographic variables and accusative–dative syncretism appears more frequently in plural than in singular contexts. Finally, specific preposition–determiner contractions are widespread across all regions and groups investigated, even in (close-to-)standard registers.

1 Introduction

This study aims at identifying linguistic and sociolinguistic patterns of variation in the realization of prepositional phrases (PPs) with two-way prepositions in spoken German in Austria. It describes linguistic constructions that are typical for German in Austria in preposition choice (p-choice), aspects of case marking in PPs and/or preposition–determiner contractions and thus accounts for phenomena on several levels of linguistic description. By hypothesizing about their distribution in socially or regionally defined (Bavarian) varieties of German in Austria, this study lays the foundations for future research on the phenomena in focus.

The remaining first section discusses terminological aspects of and sociolinguistic perspectives on German in Austria and identifies varieties of special interest in getting a first impression of the variation of not yet sufficiently investigated phenomena. It then recapitulates how variation in PPs – including phonological, morphological as well as phenomena on the syntax–lexicon interface – has so far been described for German in Austria before it systematically revisits the grammatical conditions of variation

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in PPs. Section 2 introduces the data and methods before the results are reported in Section 3. Section 4 discusses the findings and identifies research perspectives.

1.1 Sociolinguistic perspectives on German in Austria

The notion "German in Austria" is a hypernym referring to all linguistic varieties of German used within the (either historical or contemporary) borders of Austria and/or associated with Austria (see Budin et al. 2019, https://dioe.at/en/about-dioe/faqs/). Three aspects are essential in the characterization of these varieties, namely (1) the (putative) influence of (historical) language contact (in particular with Slavic languages), (2) the relation of the Austrian standard variety of German (or: Standard Austrian German [SAG]) to the other standard varieties and especially the one from Germany (Standard German German [SGG]) and (3) the highly frequent and positively perceived use of local or regional dialects (see also Lenz 2019, 321–3).

1.1.1 Historical language contact

From a historical perspective, Slavic-Bavarian co-habitation in the area of present-day Austria has persisted from the end of the sixth century, when the Bavarians began to invade the area that would later become the *plaga orientalis* 'Eastern realm', i.e. the antecedent of Austria (Holzer 2006, 176). Particularly, the late Habsburg monarchy (eighteenth and nineteenth centuries) was shaped by widespread Slavic-German bilingualism that paradoxically led to both national differentiation and cultural hybridity (for an overview see Kim and Prochazka 2019). Due to this long and complex history of multilingualism in the Habsburg monarchy, Newerkla (2007) conceives of several overlapping micro contact areas in Central Europe such as, i.a., the Czech-German contact area in Eastern Austria (see Newerkla 2007, 2013) or the Slovene-German contact area in Southern Carinthia (see Neweklowsky 1990). Both contact situations have been shaped by prolonged stable bilingualism – a scenario that according to Muysken (2010, 2013) may lead to convergent development on various linguistic levels. The present-day Austrian constitution declares German the national language of the Austrian Republic, notwithstanding the autochthonous ethnic groups, which are granted special linguistic rights. However, legally acknowledged multilingualism is construed as essentially historical: the autochthonous ethnic groups (speakers of Slovenian, Burgenland Croatian, Hungarian, Czech, Slovak and Romani) are mainly defined along criteria such as historical co-habitation in a certain territory. On the other hand, so-called allochthonous linguistic minorities, i.e. speakers of other languages who immigrated to Austria in the twentieth and twenty-first century, are not recognized as official languages or languages of instruction by law. This historical notion of multilingualism links contemporary Austria to its history as the centre of the Habsburg monarchy and is thus exploited as an important aspect in the creation of Austrian (linguistic) identity (see Glauninger 2015, Kim 2020).

1.1.2 Relation of German in Austria to German in Germany

At the same time, the contemporary Austrian (linguistic) identity has emerged in opposition to and as rejection of a Pan-German identity after World War II (see De Cillia and Wodak 2006). An important measure in the dissociation from a Pan-German *Sprach- und Kulturnation* was the codification of SAG by the Austrian Dictionary (*Österreichisches Wörterbuch* – ÖWB 2018) – a process that revived similar developments during the Habsburg monarchy (see Ammon 1995, 117–36). As of yet, some issues regarding SAG and its relation to SGG (and to a lesser degree Swiss Standard German) are subject to discussion and research. These include the question whether German pluricentricity is structured (rather) plurinationally or (rather) pluriareally (see e.g. Ammon 1995, Schmidlin 2011, Auer 2013 and – controversially – Dollinger 2019) as well as attitudinal and perceptual aspects (see Koppensteiner and Lenz 2017, 2020, in press). Issues of

linguistic variants and their distribution in various standard varieties of German have been investigated and described on the basis of large corpora by the Dictionary and the Grammar of German variants (*Variantenwörterbuch*, Ammon et al. 2016; *Variantengrammatik*, Dürscheid et al. 2018).

1.1.3 Dialect varieties in German in Austria

Another important aspect for the Austrian linguistic identity is dialect usage. In the largest parts of Austria – which are the focus of the present study – Central and Southern Bavarian dialects prevail. Only in Vorarlberg and the westernmost parts of Tyrol, Alemannic dialects are used (cf. Lenz 2019). Auer (2005, 22–3) describes the sociolinguistic repertoire of German speakers in (rural) Austria as diglossic. It corresponds to a standard/dialect continuum with non-discrete varieties characterized by frequent code-switching (cf. i.a. Soukup 2009). However, the evaluation of perceived standard and dialect varieties differs in urban and rural areas. In the latter, dialect is used in many more contexts of every-day life than in urban areas and dialect use is evaluated very positively. In the urban areas including Vienna, on the other hand, the use of intermediate and standard varieties prevails in most contexts. Particularly in Vienna, dialect is evaluated significantly more often as negative (cf. Moosmüller 1991, 21–2; Steinegger, 1998, 169–84). These differences affect language choice in various settings and are also crucial regarding speech directed towards young children: According to Wiesinger (2008, 44), adults from urban areas rather intend to choose standard-like features in child-directed speech (CDS) since this is believed to support their children's future educational prospects. A case study of parent–child interactions reported in Martin (2000, 113–4) confirms this tendency. It holds less for adults from rural areas. Generally, however, speech of parents directed to their young children is also often relatively informal (Shockey and Bond 1980).

Based on these introductory remarks, we suggest varieties of German in Austria that should be considered in usage-based investigations that aim at describing the variation of yet largely underresearched linguistic phenomena throughout the whole linguistic spectrum. First, aspects of variation on the dialect–standard axis may at best be identified by comparing rural dialects as used in informal settings with urban, spoken standard registers in formal settings and, as an intermediate register, informal, but close-to-standard urban CDS. Second, aspects of regional variation require research into several rural dialects covering the different dialect areas. If potential interferences from historical language contact are to be considered, data from the larger historical contact areas (e.g. Carinthia, Eastern Austria, Burgenland) are of interest.

1.2 PPs and (variation in) German in Austria

Almost each publication focusing on linguistic variants typical for SAG includes a small list of PP constructions (e.g. De Cillia and Ransmayr 2019, Ebner 1988, 2008, 2009, Muhr 1995, Wiesinger 1996). However, some of these constructions are not explicitly marked as Austrian in codifying or corpus-based publications such as the ÖWB (2018), Ammon et al. (2016) or Dürscheid et al. (2018), but they are rather phenomena that are "instinctively allocated to a country [Austria or Germany] by linguistic experts and linguistically well-versed laymen," as expressed by De Cillia and Ransmayr (2019, 165). The most mentioned constructions including two-way prepositions are as follows:

(a) the use of the contraction form *am* instead of *auf dem* 'at the.DAT.SG',
(b) the construction *vergessen auf* + ACC 'forget about', which is not known in Germany (cf. Kim et al. 2020 for a data-based description),
(c) SAG *auf* 'on' instead of SGG *an* 'at' in the PP governed by the verb *sich erinnern* 'remember',
(d) SAG *in die Schule gehen* instead of SGG *zur Schule gehen* 'go to school',
(e) SAG *auf Urlaub sein/gehen* instead of SGG *in Urlaub sein/gehen* 'be/go on holiday' and
(f) SAG *auf Besuch sein/kommen* vs SGG *zu Besuch sein/kommen* 'visit somebody'.

As can be seen, this list includes phenomena on various linguistic levels from the interface of phonology and morphology (preposition–determiner contraction, [a]) to the interface of syntax and lexicon (case government, [b]; p-choice in prepositional or directive arguments [c and d], or phrases with character of phraseolexemes, [e and f]).

Most of the mentioned examples, however, include the preposition *auf* 'on' governed by either a mental verb or a verb of motion or position. Interestingly, publications on (historical) language contact of German in Austria with Slavic languages (e.g. Newerkla 2007, Schleicher 1851, Schuchardt 1884) particularly highlight p-choice and also list the above-given constructions except for SAG *in die Schule gehen* 'to go to school' as results of this contact situation. Schuchardt (1884, 115) even argues that prepositions in general are especially prone to language contact-induced change and identifies *auf* 'on' as the "favourite" preposition of speakers of German in the Habsburg monarchy with Slavic L1 (see also Kim 2020, 115–26).

Another phenomenon pertaining to p-choice, namely preposition drop (p-drop), is prominently discussed in the context of present-day language contact and ethnolects of young urban migrants in Germany (Auer 2003, 2013, Siegel 2014, Wiese 2012). However, in directed motion constructions in the form *intransitive motion verb* + ARG$_{DIR}$, it is also typical for Southern Bavarian dialects in Austria (Lenzhofer 2017, Pohl 1989, Kerschhofer-Puhalo 2019). In addition, Kerschhofer-Puhalo (2019) describes several examples of directed motion as well as locative and temporal constructions in informal speech of autochthonous (non-migrant) people of various ages living in Vienna. Kerschhofer-Puhalo (2019, 132) highlights that these "compact constructions" follow several structural and lexical as well as pragmatic restrictions: Locative constructions only appear with the copula *sein* 'be', whereas a very small number of motion verbs (particularly *gehen* 'go', *fahren* 'drive', rarely *kommen* 'come') are involved in the directed motion constructions, whereas other more specific motion verbs (e.g. *laufen* 'run', *wandern* 'hike') are not found in these constructions that involve p-drop (Kerschhofer-Puhalo 2019, 132). Following Bühler's (1934) two field theory, which distinguishes between the deictic and the symbolic field, Kerschhofer-Puhalo (2019, 132) classifies these compact constructions as deictic, as they are part of the "here and now" and unambiguous in the context of the communication.

Some Upper German varieties also use constructions including two-way prepositions that are fundamentally different from those in standard varieties of German like so-called prepositional dative marking described by Seiler (2002). In these constructions, PPs with either *in* 'in' or *an* 'at' replace the dative (e.g. *er hats an/in der Mutter gesagt* 'the told the mother', see Seiler 2002, 243). Generally, however, data-based research on the use of prepositions or PPs in spoken non-standard varieties of German in Austria is scarce, except for a detailed analysis of preposition frequencies in spoken Alemannic (including Vorarlberg in Austria) and Franconian varieties (Mikosch 1987). In contrast to Mikosch (1987), the present study does not focus prepositions as such, but PPs as a whole. As already indicated above and elaborated in the next section, p-choice is not the only potential position of variation in these phrases.

1.3 Potential positions of variation in PPs

Prepositions are functors (or: operative terms) that form PPs by expanding nominal (and other) phrases (NPs). In doing so, they govern the NPs' case. Semantically, they relate an object, property or fact to another object or fact in a specified way (e.g. local, directional, causal, temporal, etc.) (Zifonun et al. 1997, 44–5). Their semantic meaning thus comprises two aspects: First, prepositions constitute and denote a certain region with regard to their "inner" argument (e.g. the noun in the governed NP, *the shelf* in [1]; for a closer semantic description of some German prepositions cf. Eroms 1981, Wunderlich and Herweg 1991, Zifonun et al. 1997, 2116–54). Second, they express a relation of its "outer" argument (e.g. the subject of the sentence, *the cat* in [1] or the head of the NP in [2]) to the "inner" argument (Zifonun et al. 1997, 2099–100).

(1)	*Die*	*Katze*	*putz-t*	*sich*	*auf*
	DEF.ART.F.SG.NOM	cat	clean-PRS.3SG	self.3SG	on
	dem	*Regal.*			
	DEF.ART.N.SG.DAT	shelf			
	'The cat preens itself on the shelf.'				
(2)	*Die*	*Katze*	*auf*	*dem*	*Regal*
	DEF.ART.F.SG.NOM	cat	on	DEF.ART.N.SG.DAT	shelf
	putz-t	*sich.*			
	clean-PRS.3SG	REFL.3SG			
	'The cat on the shelf preens itself.'				

Due to their ability to denote relations between entities, prepositions are not mere function words without or with only marginal lexical meaning. They rather resemble other content word classes in bearing meaning as well as in forming an open word class, i.e. open to new additions such as *anstelle* 'instead', an univerbation of the original PP *an Stelle* 'in stead' (see Zifonun et al. 1997, 2076).

Against the background of these syntactic and semantic properties of prepositions, PPs allow for variation with regard to at least the following three aspects:

(a) p-choice, i.e. the semantically motivated choice of a certain preposition at the interface of syntax and lexicon,

(b) aspects of case marking or even case government, i.e. the morphological marking of syntactic serialization and

(c) preposition–determiner contraction (or: fusion, enclisis), i.e. the morphophonological aspect of serialization.

Hereafter, these aspects will be dealt with more closely with a focus on German and the peculiarities of German in Austria.

1.3.1 P-choice

P-choice interacts with the syntactic function of the PP. Depending on the function, semantic aspects of the local preposition are highlighted differently: In cases of PPs as sentence adverbials (1) or attributes of an NP (2) (adv), both aspects are retained (Zifonun et al. 1997, 2100–2). If the PP has the status of a local or directional argument (3) (arg-1), e.g., of position words like *sitzen* 'sit', *stehen* 'stand', *lie* 'liegen', *wohnen* 'live' or motion verbs like *gehen* 'go', *setzen* 'cause to sit', *stellen* 'cause to stand', *legen* 'cause to lie', the relation is first and foremost expressed by the verb. The preposition only adds the specification of the region (Zifonun et al. 1997, 2102, 2155).

(3)	*Das*	*Buch*	*lieg-t*	*auf*	*dem*	*Regal.*
	DEF.ART.N.SG.NOM	book	lie-PRS.3SG	on	DEF.ART.N.SG.DAT	shelf
	'The book lies on the shelf.'					

In cases such as (4), when the PP functions as a prepositional, non-local or directional argument (arg-2), the preposition is semantically completely or almost completely empty (Zifonun et al. 1997, 2155; for aspects of grammaticalization in German see Hundt 2001). In these cases, p-choice is determined by the predicate rather than by the expressed content and the preposition is consequently reduced to its ability to constitute phrases.

(4)	*Ich*	*wart-e*	*auf*	*besser-es*	*Wetter.*
	I	wait-PRS.1SG	on	better-N.SG.ACC	weather
	'I am waiting for better weather.'				

Most prepositional constructions regarded as typical for SAG (see Section 1.2) involve p-choice in arg-1 and arg-2 PPs.

1.3.2 Case government and case marking

Some prepositions only govern one case, others more than one. In standard varieties of German, a sub-group of highly grammaticalized spatial prepositions, the so-called two-way prepositions (i.e. *an* 'at', *auf* 'on', *in* 'in', *hinter* 'behind', *neben* 'beside', *über* 'above', *unter* 'under', *vor* 'in front of', *zwischen* 'between') either govern a dative or an accusative case depending on the exact meaning (Wöllstein and Dudenredaktion, 2016, 620, Zifonun et al. 1997, 2105). In these instances, the dative expresses a static location, i.e. an existing relation (5a), the accusative indicates a dynamic and directional change of location, i.e. an emerging relation (5b) (Leys 1989).

(5)	(a)	*Die*	*Katze*	*lieg-t*	*in*	*dem*
		DEF.ART.F.SG.NOM	cat	lie-PRS.3SG	in	DEF.ART.N.SG.DAT
		Regal.				
		shelf				
		'The cat lies in the shelf.'				
	(b)	*Die*	*Katze*	*spring-t*	*in*	*das*
		DEF.ART.F.SG.NOM	cat	jump-PRS.3SG	in	DEF.ART.N.SG.ACC
		Regal.				
		shelf				
		'The cat jumps into the shelf.'				

In opposition to standard varieties of German the formal distinction between accusative and dative case in Bavarian varieties is not as regular. First, they do not formally distinguish case in plural paradigms. Second, phonetic reduction processes ([m] > [n]) lead to increasing case syncretism in the masculine singular paradigms that hence develops a unified object case (in contrast to the nominative subject case) in the singular (cf. Zehetner 1978, 320, Weiß 1998, 46). This development mostly pertains to demonstratives (and adjectives in strong declension). Note that in Bavarian – as in standard varieties of German – demonstratives generally function as the main position of case marking in the NP (cf. Weiß 1998, 44–6).

Under these circumstances, the semantic distinction of case with two-way prepositions cannot be maintained anymore. Due to the fact that case syncretism does not affect all paradigms, we hereinafter speak of variation in surface case marking rather than case government and include both syncretism and cases of (insufficient) morphological case marking due to phonological processes.

1.3.3 Preposition–determiner contractions

In German, certain prepositions fuse with certain forms of the following definite determiner *der*, *die*, *das* 'the' if it is semantically weak, e.g., *an dem* > *am* 'at the.M/N.SG.DAT', *in dem* > *im* 'in the.M/N.SG.DAT'. The *Duden* (Wöllstein and Dudenredaktion 2016, 627–31) codifies two layers of contraction forms for German (Table A1 in the Appendix), none of which include feminine singular or plural determiners:

- contraction forms that are obligatory in certain semantic contexts (e.g. *an dem > am* 'at the.M.SG.DAT', *in dem > im* 'in the.M.SG.DAT') and
- contraction forms that are common in colloquial language and increasingly found in written texts (e.g. *hinter dem > hinterm* 'behind the.M.SG.DAT', *hinter das > hinters* 'behind the.N.SG.ACC').

The contraction of prepositions and determiners in standard varieties of German is described as a phenomenon in change (Wöllstein and Dudenredaktion 2016, 630) or a "'construction site' of grammaticalization" (as Nübling 2005 titles her paper) because only some determiners have developed clitics that either facultatively or even obligatorily contract with the preposition under a range of circumstances (for a diachronic account see Christiansen 2016). Generally, Nübling (2005) and Schiering (2005) apply a grammaticalization scale to describe the status of the single contraction forms: It starts from a wide range of allegro forms typical for colloquial registers and regional varieties of German (e.g. **and* 'at the.F.SG.ACC', **ind* 'into the.F.SG.ACC'). The second step are so-called *general clitics* in terms of Zwicky (1977), which lead to non-obligatory but increasingly common contraction forms in colloquial (written) communication. The third step are obligatory fusion forms as so-called *special clitics* (Zwicky 1977), which are the preliminary stage to inflectional morphemes (see Schiering 2005 for Ruhr German). For German in Austria, preposition–determiner contraction has not yet been investigated even though the contraction *auf dem > am* 'on the.M/N.SG.DAT' is amongst the most frequently mentioned typical Austrian constructions and considered part of SAG (see Section 1.2).

2 Method

This study sheds light on both linguistic and sociolinguistic variation of PPs in various varieties of German in Austria. The linguistic perspective explores language internal factors and restrictions for all types of variations documented in our corpus. It utilizes qualitative and descriptive methods. The sociolinguistic perspective takes social and regional variation into account and is analyzed with statistical generalized linear mixed-effects models. For this purpose, variation was operationalized binarily as the (non-)conformity with the exocentric reference variety SGG, which enabled the identification and inclusion of all (possibly) typical Austrian constructions in PPs (including case marking, which of course applies to NPs in general). By combining the two approaches in the analysis, the study gives a first insight into variation of (subtypes of) p-choice, case marking and preposition–determiner contractions on the dialect–standard axis of German in Austria.

2.1 Data

The analyzed data were recorded in two different research projects in the period 2012–2018. The rural data are part of a corpus of informal and formal varieties of German spoken in rural Austria built by Project Part (PP) 03 "Between dialects and standard varieties: Speech repertoires and varietal spectra" and PP 08 "Standard varieties from the perspective of perceptual variationist linguistics" of the Special Research Programme (SFB) "German in Austria: Variation – Contact – Perception" (Budin et al. 2019, Koppensteiner and Lenz 2017, Lenz et al. 2019). The current investigation focuses on recordings in informal situations. The corpus data will be available online at the SFB's online platform (https://dioe.at/en/) after the completion of the projects in 2024.

The urban data were collected within the project "Investigating Parental and Other Caretakers' Utterances to Kindergarten Children" (INPUT) (Korecky-Kröll et al. 2016) that recorded parents and other caretakers when communicating with (their) children as well as in interview situations. In this context, we only include speech of parents with German as L1 into the analysis even though the corpus comprises
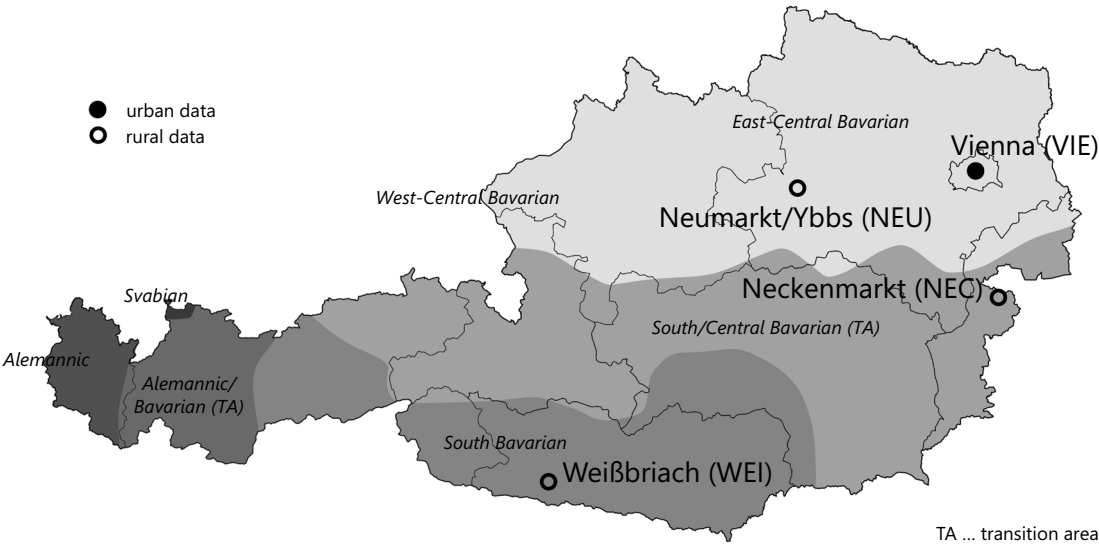
Figure 1: Participants' home locations and their dialect regions (created with regionalsprache.de).

speakers of German as L2 and interaction in other languages than German, too. Due to aspects of data privacy, the corpus is not publicly available.

The data types were selected in order to capture spoken varieties of Bavarian German in Austria that presumptively represent the extreme poles on the dialect–standard axis: formal adult-directed speech (ADS) from Vienna as (close-to-)standard and informal peer conversations as dialectal varieties. The CDS from Vienna was added in order to capture an informal, presumptively (close-to-)standard variety.

The participants, whose speech is investigated in the current publication, were 40 younger (18–45 years) and older (60+ years) adult L1 speakers of German (31 women, 9 men) living either in Vienna or in one of three different rural regions distributed over the main Bavarian dialect areas in Austria (Central and South Bavarian as well as the transition area, see Figure 1).

For determining the participants' socioeconomic status (SES) we use the educational level as the main criterion (see Hoff 2003). According to this approach, 21 participants are from higher socioeconomic status (HSES), as they have educational levels of at least high school diploma, whereas 19 participants are from lower socioeconomic status (LSES), with educational levels below high school diploma. Table 1 gives an overview of participants' locations and sociodemographic variables.

However, it must be noted that in rural participants, SES and age had to be treated as one composite variable because the rural sample comprised only younger HSES and older LSES participants. This implies

Table 1: Participants' home locations and their sociodemographic variables

Location	Dialect region	SES	Numbers of f(emale) and m(ale) part(icipants)	Age group
VIE: Vienna (urban)	Central Bavarian	LSES	11 f, 2 m	18–45
		HSES	15 f	18–45
NEU: Neumarkt/Ybbs (rural)	Central Bavarian	LSES	2 m	60+
		HSES	2 f	18–35
NEC: Neckenmarkt (rural)	South/Central Bavarian	LSES	2 f	60+
		HSES	2 m	18–35
WEI: Weißbriach (rural)	South Bavarian	LSES	1 f, 1 m	60+
		HSES	2 m	18–35
Totals	28 urban	19 LSES	31 f	18–45 (28 part.)
	12 rural	21 HSES	9 m	18–35 (6 part.)
				60+ (6 part.)

that we can investigate the SES variable alone only when comparing rural and urban younger adults or among the urban adults who belong exclusively to the younger age group.

The analyzed corpus consists of spontaneous speech recorded in different settings. The rural participants were asked to have a 1-h peer conversation with a friend on various, given topics (e.g., language attitudes, hobbies; see Koppensteiner and Lenz 2017, 60–1).

The urban participants, who were all parental main caretakers of young children aged 3–4, were recorded in natural parent–child interaction with their children. These situations showed considerable variation: Some parents engaged in spontaneous conversation with their children, others decided to read storybooks or play games. Overall, there were four 30-min recordings of parent–child interaction per parent over a period of 1 ½ years. Furthermore, the same parents were asked to give a so-called parent interview (total: 30 min, audio-recorded at the third or fourth point of the survey in most cases). In this interview, the researcher asked the parents about their daily routines and preferred activities with their children, their children's development and their expectations for the future.

To sum up, this study is based on recordings of two main settings, namely ADS and CDS. The ADS data furthermore comprise more formal interview data from the urban and less formal peer conversation data from the rural corpus. All data were transcribed by skilled student assistants. Transcription and basic tagging of parts-of-speech and morphology of the urban data was done in CHILDES (MacWhinney 2000), whereas EXMARaLDA (Schmidt and Wörner 2014) was used for transcription and basic tagging of the rural data. Additional tags for PPs were added in MS Excel (using a modified tagset of the one developed in Korecky-Kröll and Buchegger 2018).

2.2 Annotation

In the annotation process, special attention was paid to the three aspects of variation in PPs described in Section 1.3: p-choice, case marking and preposition–determiner contraction. Cases which would require a preposition in SGG were included even if the preposition was omitted in the actual utterance. Generally, the annotation system was designed to capture deviation from a normatively defined SGG as codified by the *Duden* (2019) and the *Dictionary of contemporary German* (DWDS 2019) with regard to the three aspects of PP-internal variation. To enable the identification of phenomena in several varieties of German in Austria including SAG, we opted for SGG as the reference variety. Therefore, Austrian codifying publications such as the *Austrian dictionary* (ÖWB 2018) or publications that focus variation in the standard varieties of German (Ammon et al. 2016; Dürscheid et al. 2018) were not consulted in the annotation process. However, they are considered in the interpretation and discussion of results (see Section 4).

If the *Duden* and the DWDS allowed for more than one realization of the PP regarding p-choice, we chose the one more frequently represented in the DWDS corpora, which was identified with the DWDS word profile function. Concerning preposition–determiner contractions, all contraction forms mentioned by Wöllstein and Dudenredaktion (2016, 627–31; see Table A1), i.e. obligatory and highly common forms, were marked as compliant with SGG.

After excluding two unclear cases, our final dataset consisted of 4,761 concordances including PPs with two-way prepositions as their heads.

2.3 Statistical analyses

In the statistical analyses, we used the lme4 package (Bates et al. 2015) of R (R Core Team 2018) to conduct generalized linear mixed-effects models (glmer) of the relationship between participants' production of PPs (the dependent variable) and various independent variables related to the participants, the method and the linguistic properties of the PPs. Fixed participant variables were age group, SES, urban vs rural as well as the location. A fixed variable related to the method was the setting (ADS vs CDS) and the formality of the

speech (parent–child conversations as well as conversations with friends were classified as informal, whereas interviews were classified as formal). Participant ID and the preposition were entered as random variables. The dependent variable was always binomial: Two-way PPs that were morphosyntactically identical to the preferred SGG forms were coded as 1, whereas non-SGG-conform forms were coded as 0. We analyzed three different dependent variables: accordance of (1) p-choice, (2) PP-internal surface case marking and (3) preposition–determiner contraction.

Models were compared according to their Akaike Information Criterion (AIC) values: the smaller the AIC, the better the fit of the respective model (see Levshina 2015, 149). In all analyses, the following significance levels were considered: $^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{.}p < 0.1$ (non-significant trend), n.s. $p \geq 0.1$ (non-significant).

In the statistical analyses, different independent variables were tested in separate models and on various – either regionally or socially restricted – subcorpora to estimate their impact on the dependent variable, namely deviation from SGG regarding one aspect of inner-PP variation. Potential interaction effects were examined, too, and are reported if significant. For reasons of space, most of the models without significant interaction effects are not reported.

3 Results

This section presents the results for each dependent variable – p-choice, case marking and preposition–determiner contractions – separately. First, the non-SGG-conform constructions are described in order to identify subtypes and linguistic restrictions. Then, statistical analyses uncover the sociolinguistic distribution of deviations from SGG, before both approaches are integrated.

3.1 P-choice

3.1.1 Descriptive results

In the full corpus, 187 of 4,763 (i.e. 3.93%) examples deviate from SGG regarding p-choice. It is thus the least common type of deviation. Three instances are excluded from the further analysis due to their character of spontaneous self-corrections or mistakes (A in the Appendix). The remaining 184 examples were categorized according to their syntactic status (adv, arg-1, arg-2) and semantic roles expressed by them. The largest number of examples (59.24%) are PPs with arg-1 status, whereas the share of PPs with adv and arg-2 status is comparably low (cf. Table A2 in the Appendix). The more detailed description groups the non-SGG-conform PPs according to their semantic role and the realized preposition. Note that only four of these semantic role/preposition pairs are documented by more than ten examples. The corpus is hence too small to allow for judgements regarding the regularity of most constructions. It is, however, striking that 66% of deviations include the preposition *auf* 'on, onto' instead of another, SGG-conform preposition: Three of these four semantic role/preposition pairs that are documented by more than ten instances also include *auf*, namely PPs with temporal adv status (6),[1] and PPs with arg-1 status expressing either LOCATION (7) or GOAL (8). The fourth well documented type also pertains to arg-1 PPs expressing GOAL. In this case, however, the preposition is dropped (9).

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1 Note that (6a) includes an informal Austrian lexical equivalent of standard German *am Abend* 'in the evening', namely *auf die* (>*auf d*) *Nacht*. Nine out of 11 instances of temporal adv PPs involve this collocation and only 2 other NPs (6b).

(6) (a) VIE-y-HSES-ADS

je	*nachdem,*	*ob*	*der*
depending	on	whether	DEF.ART.M.SG.NOM
papa	***auf***	***d=nacht***	*arbeit-en*
daddy	on	DEF.ART.F.SG.ACC=night	work-INF
muss			
must.3SG			

'depending on whether daddy has to work in the evening'

SGG *je nachdem, ob der Papa am Abend arbeiten muss*

(b) WEI-y-HSES-ADS

do	*reißt=s*	*uns*	***auf*** ***irgenda-n***
then	tear-PRS.3SG=it.NOM	we.ACC	on one-ACC
noh-mittog			
after-noon			

'then we are motivated one afternoon'

SGG *dann sind wir eines Nachmittags motiviert*

(7) WEI-y-HSES-ADS

san	*eh*	***auf***	***der***
be-PRS.3PL	anyway	on	DEF.ART.F.SG.DAT
letzt-en	*österreich*	*in*	***ecken***
last- F.SG.DAT	Austria	in	corner
in	*vorarlberg*		
in	Vorarlberg		

'(they) are in Austria's last corner, in Vorarlberg'

SGG *sind ohnehin in der letzten Ecke von Österreich, in Vorarlberg*

(8) NEU-o-LSES-ADS

und	*er*	*is*	***auf***
and	he.NOM	AUX.PRS.3SG	on
d=schonk	*gonga*		
DEF.ART.F.SG.ACC=bar	go-PST.PTCP		

'and he went to the bar'

SGG *und er ist zur Schank/zum Tresen gegangen*

(9) WEI-y-HSES-ADS

bin	*i*	***graz***	*auss-i*
AUX.PRS.1SG	I.NOM	Graz	out-to
gfohren			
PST.PTCP-drive-PST.PTCP			

'I drove to Graz'

SGG *bin ich hinaus nach Graz gefahren*

Last, and even though the number of examples is low, the most common type of non-SGG-conform arg-2 PPs shall be dealt with. Six out of seven PATIENT arguments realized with *auf* 'on, onto' pertain to the mental verbs (*sich*) *erinnern* 'remember' (2 examples) (10) and *denken* 'think (about)' (4 examples) (11) that govern PPs with *an* 'at' in SGG.

(10) VIE-y-HSES-CDS

kannst	*dich*	*noch*	*erinner-n*
can-PRS.2SG	REFL.2SG.ACC	still	remember-INF
auf	***die***	***geschichte?***	
on	DEF.ART.F.SG.ACC	story	

'can you still remember the story?'

SGG *kannst du dich noch an die Geschichte erinnern?*

(11) WEI-o-LSES-ADS

(*wemm=ma*)	*amol*	***auf=s***	
if=one.NOM	once	on=DEF.ART.N.SG.ACC	
schi-fohr-en	*denken*	*tät*	
ski-drive-INF	think-INF	do-PST.SBJV.3SG	

'if you once thought about skiing'

SGG *wenn man einmal ans Skifahren denken würde*

3.1.2 Sociolinguistic analyses

Regarding p-choice, the statistical analyses mainly yield significant effects of areal independent variables on the degree of deviation, whereas social or setting-specific variables play a minor role (Tables A3 and A4 in the Appendix). The strongest effect can be seen when comparing urban and rural participants: Urban participants produce significantly more SGG-conform prepositions than rural participants (model A.4: $z = 6.131^{***}$, AIC = 861.7741). This result is reflected in the models for diastratically defined subcorpora and in most models calculated with place as the independent variable. A closer look at the data reveals that participants from VIE show a very high rate of SGG-conform prepositions (98.19%). However, participants from different rural locations behave quite differently, too. In comparison to NEC, participants from WEI produce significantly fewer SGG-conform prepositions ($z = -2.635^{**}$), whereas there is only a nonsignificant trend for NEU ($z = -1.876^{\cdot}$) and a significant positive effect for Vienna ($z = 2.746^{**}$), as shown in model (A.3) (AIC = 859.4079), the best model for the complete sample. Similarly, in model (A.8), the best model for the rural subcorpus, WEI also shows a negative effect of medium significance ($z = -2.945^{**}$), whereas NEU shows only a slightly significant effect ($z = -2.176^{*}$) in comparison to NEC (AIC = 509.1945). Interestingly, the older participants in WEI seem to be decisive in this effect: Model (B.4) calculated for the rural data reveals an interaction trend of SES/age and place ($z = 1.897^{\cdot}$), meaning that older participants (with LSES) from WEI produce more non-SGG prepositions than others. Model (A.14), the best model for the LSES subcorpus, supports these results by showing a significant negative place-effect on SGG conformity for WEI ($z = -3.228^{**}$, AIC = 371.2599).

The only significant effects of social or setting-related independent variables were obtained when examining the full corpus: In the complete sample, younger participants produce significantly more SGG-conform prepositions (see model (A.2), young: $z = 2.776^{**}$, AIC = 883.165) as do participants when engaged in CDS (see model (A.5), CDS: $z = 2.829^{**}$, AIC = 882.4053).

To sum up (Table 2), we can identify a group of participants prone to use SGG-conform prepositions particularly frequently, namely young urban speakers in conversations with their children (1.62% non-SGG-conform prepositions). On the other hand, elderly participants from WEI tend to produce the highest percentage of non-SGG-conform prepositions (13.85%). Interestingly, WEI is the only rural place, in which a difference between old and young participants regarding their p-choice can be found, even though it is too small to be statistically significant.

Figure 2 gives an insight into the areal and social distribution of the above described types of p-choice that are quite well documented in the corpus. We find that except for p-drop in arg-1 PPs expressing GOAL, all types can be found in the close to standard registers documented in VIE as well. However, many of these examples pertain to the use of phraseolexemes with the nouns *Besuch* 'visit' or *Urlaub* 'holiday' such as (12) (arg-1 LOC; 10 of 14, i.e. 71.43%) and (13) (arg-1 GOAL; 13 of 24, i.e. 54.17%) that are typical for SAG (see Section 4).

Table 2: Percentages of non-SGG-conform p-choice in subcorpora defined by place and age or setting

Place	*n*	Percentage	Old	Young	
NEC	37 of 484	7.64	18 of 229	18 of 255	
			0.80%		% old–young
NEU	42 of 437	9.61	16 of 177	26 of 260	
			−0.96%		% old–young
WEI	45 of 368	12.23	32 of 231	13 of 137	
			4.36%		% old–young
			ADS	**CDS**	
VIE	63 of 3,474	1.81	29 of 1,371	34 of 2,103	
			0.50%		% ADS–CDS
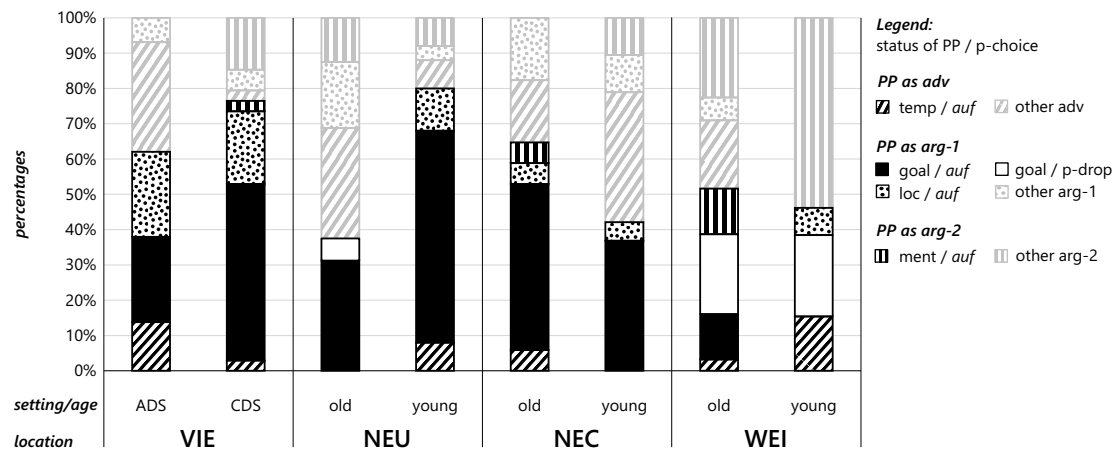
Figure 2: Areal and social distribution of types of non-SGG-conform p-choice.

(12)	VIE-y-HSES-CDS	*ich*	*hab*	*geglaubt*		
		I.NOM	AUX.PRS.1SG	PST.PTCP-believe-PST.PTCP		
		ihr	*seid*	*schon*	***auf***	*urlaub*
		you.PL.NOM	be.PRS.2PL	already	on	holiday
		'I thought you already were on holidays'				
	SGG	*ich habe geglaubt, ihr seid schon im Urlaub*				
(13)	VIE-y-HSES-ADS	*manchmal*	*kommt*	*der*		*opa*
		sometimes	come.PRS.3SG	DEF.ART.M.SG.NOM		granddad
		auf	*besuch*			
		on	visit			
		'sometimes granddad comes for a visit'				
	SGG	*manchmal kommt Opa zu Besuch*				

The most obvious regional differences can be seen regarding the use of either *auf* 'on, onto' or p-drop with arg-1 PPs expressing GOAL. Whereas in South Bavarian WEI p-drop prevails, participants from the places in the Central Bavarian or transition area prefer PPs with *auf*. Focusing on all directed motion constructions of the form *intransitive motion verb* + ARG$_{GOAL}$ and their realization in the three rural locations (41.5% of all deviations in p-choice in the rural data and 41.4% in the complete data set),[2] we find that between 34% and 44% of all directed motion constructions deviate from SGG. As expected, in the Central Bavarian (NEU) and the transition area (NEC), PPs with the preposition *auf* 'on' are chosen in these cases. In WEI (South Bavarian) p-drop prevails (Figure 3).[3]

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2 VIE is excluded due to the generally low frequency of deviations from the standard and their tendency to be restricted to certain phraseolexemes.

3 One reviewer remarked that p-drop obviously only occurs with allative directional phrases, but never with elative (*I kumm Schui 'I come from school'). We have to admit that our data cannot account for elative directional phrases, because they are usually not realized with two-way prepositions but with others like *von* (+DAT) 'from', *aus* (+DAT) 'out of'. However, in the complete corpus data from WEI we can observe the assumed restriction. It remains to be analyzed.
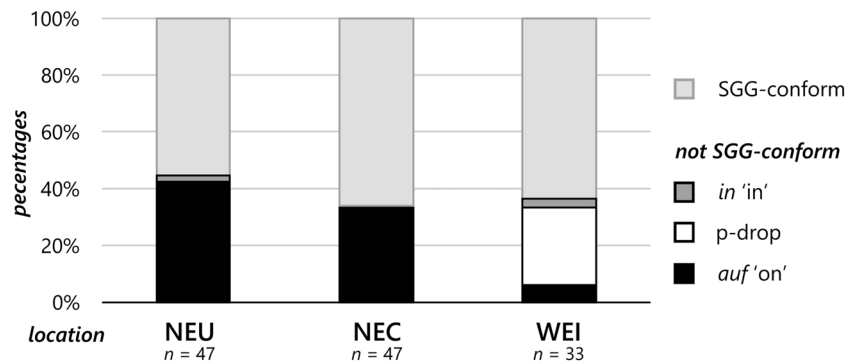
Figure 3: Regional distribution of standard and non-SGG-conform p-choice in directed motion constructions (*n* = 127).

3.2 Surface case marking

3.2.1 Descriptive results

In the full corpus, we find 292 non-SGG-conform PPs due to aspects of case government or case marking. It is thus the most common type of divergence in the corpus and pertains to 6.13% of the total number of examples. As Table A5 (in the Appendix) shows, four main subtypes can be identified in this category, the most frequent of which is determiner elision illustrated by examples (14) and (15).

(14)	NEC-y-HSES-ADS	*komm=ma*	*des*	*net*	
		can.PRS.3SG=one.NOM	this	not	
		in	*dialekt*	*aufschreim*	
		in	dialect	upwrite.INF	
		(< *im/?indn < in dəm/?dən*)			
		'you cannot write this down in dialect'			
(15)	VIE-y-LSES-CDS	*wird*	*zeit*	*dass=t*	*wieder*
		become.PRS.3SG	time	that=you.SG.NOM	again
		in	*kindergarten*	*gehst*	
		in	kindergarten	go-PRS.2SG	
		(< *indn < in dən*)			
		'its time (for you) to go back to kindergarten'			

In (14), the NP is expected to be in dative case, whereas in (15) it is expected in accusative case. However, in both instances, the determiner is elided and the position, in which case could be marked, hence disappears. The data do not allow us to reliably reconstruct the underlying case forms. Interestingly, however, 150 out of 154 instances are found with the preposition *in* 'in, inside', which suggests that a contraction form is required as an intermediate step in the reduction. Therefore, this subtype of complete determiner elision is probably a further development of preposition–determiner contraction (see Section 3.3) in spoken language, which leads to surface forms indistinct regarding case.

The second and third subtypes include instances of case syncretism in either plural or singular paradigms. In plural paradigms, it occurs almost twice as often than in singular paradigms. In all these 82 cases, dative marking is expected, but accusative forms of determiners, adjectives and/or nouns are realized (16, 17). Such examples occur regularly with nouns of all grammatical genders as well as with *pluralia tantum*, which suggests that in the Bavarian varieties in Austria, dative and accusative plural tend to syncretize.

(16) VIE-y-LSES-CDS

was	*siehst=n*	*da*
what	see-PRS.2SG=anyway	da
auf	***die***	***bild-er?***
on	DEF.ART.PL.ACC	picture-PL

'what do you see there, on these pictures?'

SGG *was siehst du denn da auf den Bildern?*

(17) WEI-y-HSES-ADS

in	***baad-e***	***eltern-heis-er***	*von*
in	both-PL.ACC	parents-home-PL	of
die	*eltern*	*jeweils ((1.2s))*	
DEF.ART.PL.ACC	parents	respectively	
werd	*der*	*jeweilig-e*	
AUX-PRS.3SG	DEF.ART.M.SG.NOM	respective-SG.NOM	
dialekt	*noch ((1.2s))*	*ziemlich*	*stork*
dialect	still	rather	strong
gsprochen.			
PST.PTCP-speak-PST.PTCP			

'in both parental homes, the respective dialect is spoken by the respective parent relatively strongly'

SGG *in beiden Elternhäusern* [...]

The examples of case syncretism in singular paradigms are rarer and less regular than those in plural paradigms. More precisely, three patterns that correspond to the position of deviation in the NP listed in Table A6 can be identified (18, 19). In (18), an expected dative determiner is in fact realized in accusative case. Examples such as (19) illustrate that the dative case of possessive pronouns may be identical with the nominative/accusative neuter or nominative masculine form.

(18) VIE-y-LSES-ADS

er	*komm-t*	*eh*	*nicht*	*weit*
he.SG.NOM	come-PRS.3SG	anyway	not	far
auf	***den***	***rutschig-en***	***boden***	
on	DEF.ART.M.SG.ACC	slippery-M.SG.ACC	ground	

er kommt eh nicht weit auf dem rutschigen Boden

SGG 'he won't come far on the slippery ground anyway'

(19) NEC-y-HSES-ADS

jo	*des ((laughs))*	*is*	*wos*	*wos*
yes	this	be.PRS.3SG	something	something
neik-s	*in*	***mein***	***leem.***	
new-N.SG.NOM	in	my.N.SG.ACC	life	

'yes, that's something new in my life.'

SGG *ja, das ist etwas Neues in meinem Leben.*

Both examples (18, 19) possibly involve phonetic reduction of final [-m] > [-n], a process that was already observed in the context of determiner elisions. Examples with feminine determiners, in which this type of reduction cannot take effect, occur only twice (B in the Appendix) and have a similar ungrammatical character to the last subtype of deviations from SGG regarding case government or case marking, namely the choice of non-canonical case forms (C and D in the Appendix). Interestingly, out of the nine cases of ungrammatical form choice, six are realized by the two speakers of (C) and (D) in informal settings. Therefore, these deviations from the standard, which mostly include the use of a dative instead of an accusative form can be judged errors or idiolectal features.[4]

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[4] One reviewer suggests that these cases can be explained by regressive assimilation of [n] before bilabial consonants. This aspect should be considered in more detailed analyses.
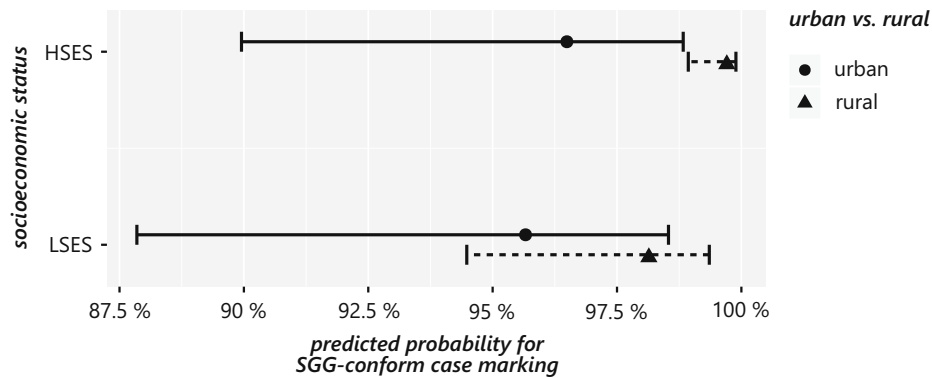
Figure 4: Interaction effect between SES and urban vs rural on case government.

3.2.2 Sociolinguistic analyses

The statistical analysis (Tables A7 and A8 in the Appendix) shows that in comparison to p-choice, variation concerning case government is structured rather socially. Regarding this aspect, LSES participants produce significantly fewer SGG-conform PPs than HSES participants (model C.1: $z = -3.528^{***}$, AIC = 1923.052). Additionally, we found that participants from urban VIE generally use more PPs with SGG-conform case (model C.3: VIE: $z = 3.767^{***}$, AIC = 1916.31; model C.4: urban: $z = 5.239^{***}$, AIC = 1913.523). Model (D.4), the best model for the full corpus, also shows a strong interaction effect between SES and urbanity: LSES participants from the urban region use comparably fewer SGG-conform case forms within PPs than the urban HSES participants, whereas LSES participants from rural regions do not differ so much from the HSES rural participants (SES: n.s., urban: $z = 8.155^{***}$, LSES:urban: $z = -4.036^{***}$, AIC = 1884.063; see Figure 4). Accordingly, the best model for the urban subcorpus shows a strong SES effect (model C.7: $z = -6.014^{***}$, AIC = 860.2739).[5]

In a nutshell (Table 3), deviations from the SGG-conform case in PPs seem to be comparably likely throughout various social groups in Bavarian speaking, rural Austria. Generally, speakers from VIE tend to realize SGG-conform case forms more often than speakers in the rural locations (χ^2 (1) = 143.056***, V = 0.173). Within VIE (χ^2 (1) = 74.925***, V = 0.147) and NEC (χ^2 (1) = 4,847*, V = 0.100), the social background seems to be decisive insofar as LSES speakers deviate from SGG more often than HSES speakers. In the other rural locations, the difference is not significant.

A glimpse into the distribution of subtypes of non-SGG-conform case marking (Figure 5) allows for the observation that both determiner elision and syncretism in singular paradigms – both of which can possibly be traced to phonetic reduction processes rather than to morphology – are spread diatopically and diastratically throughout Bavarian speaking Austria. Syncretism in plural paradigms is, however, most common in South Bavarian WEI and least common both in Central Bavarian NEU and VIE.

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5 Note that, for the rural subcorpus, the sociodemographic variables of SES and age had to be treated as one composite variable as our rural participants were either younger participants of HSES or older people of LSES backgrounds. Eventually, the social structure of our participants also results in the SES effect triggering an age effect as found for the complete data sample (model C.2: young: $z = 3.059^{**}$, AIC = 1926.217). Effects of setting were not identified regarding case government.

Table 3: Percentages of non-SGG-conform case marking in subcorpora defined by place and SES

Place	n	Percentage	HSES	LSES	
NEC	65 of 484	13.43	26 of 255	39 of 229	
			−6.83%		% HSES–LSES
NEU	42 of 437	9.61	25 of 260	17 of 177	
			0.01%		% HSES–LSES
WEI	60 of 368	16.30	19 of 137	41 of 231	
			−3.88%		% HSES–LSES
VIE	125 of 3,474	3.60	31 of 2,145	94 of 1,329	
			−5.63%		% HSES–LSES
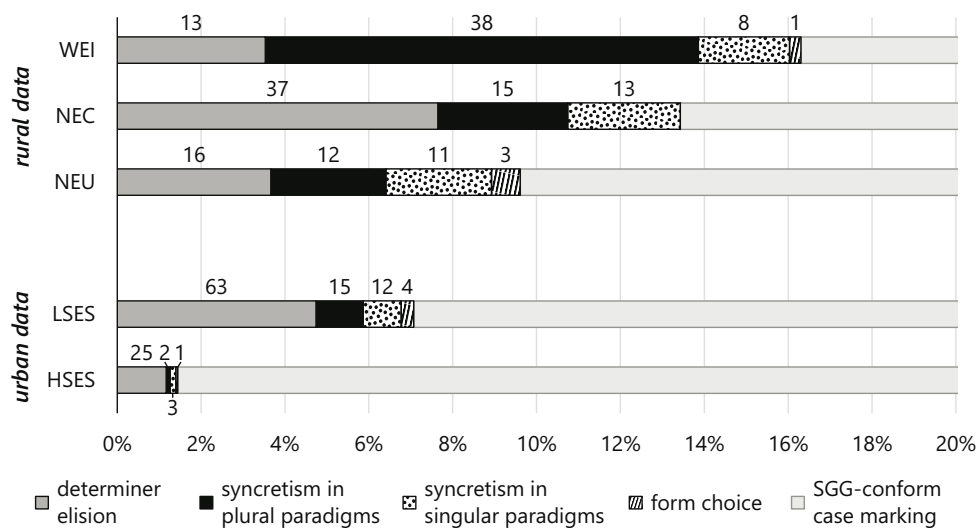
Figure 5: Subtypes of non-SGG-conform case marking across subcorpora defined by urbanity and place (rural) or SES (urban).

3.3 Preposition–determiner contractions

3.3.1 Descriptive results

Throughout the full corpus, 278 out of 4,763 examples (i.e. 5.84%) deviate from SGG in the contraction forms of preposition and determiners used. Out of these, one instance co-occurs with non-canonical p-choice and therefore does not allow us to reconstruct the full determiner form reliably (E in the Appendix). Therefore, it will be left aside in the analysis, which hence pertains to 277 instances. In these, we find no evidence for non-SGG-conform contraction forms with plural determiners or singular determiners in genitive case.

Table A8 (in the Appendix) gives an overview of non-SGG-conform preposition–determiner contractions found. In the case of feminine determiners (25 examples), the vowel is fully reduced and the initial consonant merges with the last syllable of the preposition (e.g., *in de schui* > *ind schui* 'to school'). A similar process can be observed with the masculine accusative determiner following the preposition *in* 'in, into' (two examples), where both the initial and the final consonant are retained in the preposition's last syllable offset (e.g., *in den gortn* > *indn gortn* 'into the garden').[6]

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[6] One reviewer correctly remarked that though the surface output of these two processes resembles each other, they might be different. We suggest that this difference is probably due to a different degree of grammaticalization: While the contraction of semantically weak feminine determiners with the preposition *in* 'in' is obligatory in Bavarian dialects (similar to that for neuter

The vast amount of non-SGG-conform contractions (249 examples, i.e. 89.89%) occurs with masculine accusative or dative and neuter dative determiners following the preposition *auf* 'on, onto' (20–2). All these cases result in the contraction form *am*, which is homonymous with the standard conform contraction of the preposition *an* 'at' and the masculine or neuter dative determiner *dem* [dəm].

(20) VIE-y-LSES-CDS	*mag-st*	*du*	***a=m***	
	like-PRS.2SG	you. 2SG.NOM	on=DEF.ART.M.SG.DAT	
	spielplatz (< auf den Sp.)	*geh-n?*		
	playground	go-INF		
	'Do you want to go to the playground?'			
(21) VIE-y-HSES-ADS	*wenn*	*das*	*wetter*	*pass-t*
	if	DEF.ART.N.SG.NOM	weather	fit-PRS.3SG
	sim=ma	***a=m***	*spielplatz. (< auf dem Sp.)*	
	are=we	on=DEF.ART.M.SG.DAT	playground	
	'When the weather is fine, we are at the playground'			
(22) NEU-y-HSES-ADS	*wos*	*tua-t=n*	*dee*	
	what	do-PRS.3SG=anyway	this.one.F.SG.NOM	
	a=m	*donau-insel-fest? (< auf dem D.)*		
	on=DEF.ART.N.SG.DAT	danube-island-festival		
	'What is she doing at the Donauinselfest (festival in Vienna)?'			

These contractions are widespread in the corpus. Two thirds of all examples with *auf* 'on(to)' followed by a masculine singular NP in dative deviate from SGG in their use of the contraction form *am* as do one third of the neuter singular dative NPs and a quarter of the masculine singular accusative NPs. The statistical analyses shed light on whether these non-SGG-conform contractions are equally spread through various varieties of German in Austria represented in the corpus.

3.3.2 Sociolinguistic analyses

The dependent variable of deviations from the standard regarding contraction did not yield any significant effects for the full corpus. Apparently, such deviations from SGG are widespread all over (Bavarian speaking) Austria without showing any regionally or sociodemographically determined variation in frequency. We were only able to identify weak effects and nonsignificant trends within some subcorpora:

- First, young HSES participants from NEU apparently use more non-SGG-conform contractions than those from NEC ($z = -1.835$, AIC = 776.2769; young HSES subcorpus), whereas older LSES participants from WEI use fewer ($z = 1.852$, AIC = 646.0164; LSES subcorpus) than those from NEC.
- Second, when examining the rural subcorpus, slight SES/age effects as well as interaction effects between SES/age and place were found (LSES: $z = -2.281^*$, place: n.s., LSES:WEI: $z = 2.182^*$, LSES:NEU: $z = 2.044^*$, AIC = 394.0726). This model has a slightly worse fit than a less complex model without interaction that does not yield any effect of SES or age (AIC = 392.9336).

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determiners in standard variants of German), the contraction form of the masculine determiner with the same preposition is a phonologically conditioned allegro form. Therefore, *in de schui* 'to the school' probably has a slightly different meaning than *ind schui* 'to school', while *in dən goatn* and *indn goatn* 'to the garden' do not. However, this article does not give sufficient evidence to empirically substantiate this interpretation and further research should focus on the aspect of grammaticalization degree of contraction forms in Bavarian dialects of German in Austria.
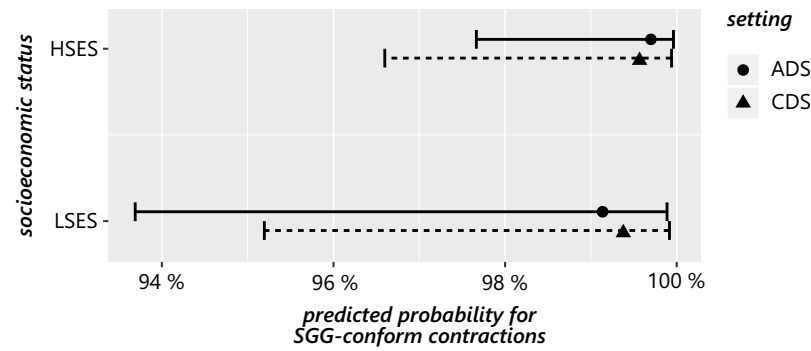
Figure 6: Urban data: Interaction trend between SES and setting on contractions.

Table 4: Percentages of non-SGG-conform contractions in subcorpora defined by place, SES and setting

Place	n	Percentage	HSES		LSES		
NEC	26 of 484	5.37	7 of 255		19 of 229		
			−5.55%				% HSES–LSES
NEU	23 of 437	5.26	15 of 260		8 of 177		
			1.25%				% HSES–LSES
WEI	10 of 368	2.72	4 of 137		6 of 231		
			0.32%				% HSES–LSES
VIE	219 of 3,474	6.30	122 of 2,145		97 of 1,329		
			−1.61%				% HSES–LSES
			23 of 789	99 of 1,356	35 of 582	62 of 747	
			−4.39%		−2.29%		% ADS–CDS
			ADS	**CDS**	**ADS**	**CDS**	

- Third, we find a weak SES effect as well as a trend of an interaction between SES and setting in the urban subcorpus (LSES $z = -2.325^*$, setting: n.s., LSES:CDS: 1.772ˈ, AIC = 1004.858). Apparently, urban LSES adults use slightly fewer SGG-conform contractions but slightly more in CDS than in ADS, whereas their HSES peers show the opposite tendency (Figure 6).

The weak effects and non-significant trends detected in the statistical analyses are depicted in the data as shown in Table 4. Taking the complete place-specific subcorpora into account, we interestingly observe that in places from the Central Bavarian (VIE, NEU) and the transition area (NEC), non-SGG-conform contractions are slightly more common than in Southern Bavarian WEI – a tendency probably not reflected in the statistical models due to the very low effect size of this difference (χ^2 (1) = 7.060*, $V = 0.039$).

In almost all places, SES does not make any difference regarding the probability of an informant to produce such contractions. Only in NEC, the fact that HSES participants produce 5.55% fewer non-SGG-conform contractions than LSES speakers yields a significant difference (χ^2 (1) = 7.316*, $V = 0.123$). Similarly, the above described tendency of LSES parents from VIE to use more non-SGG-conform contractions but fewer with their children, is very weak. The two groups virtually produce the same percentage of non-SGG-conform contractions except for a significant but very small difference in ADS (χ^2 (1) = 7.938**, $V = 0.076$), which then results in the greater difference in SGG-conform vs non-SGG-conform contractions between their ADS and CDS (χ^2 (1) = 17,886***, $V = 0.091$) than it is the case for LSES parents, where the difference is not significant.[7]

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7 The difference of non-SGG-conform contractions in the complete subcorpus from VIE is, however, significant, too (χ^2 (1) = 16.485***, V = 0.069). Again, the effect size is very small.
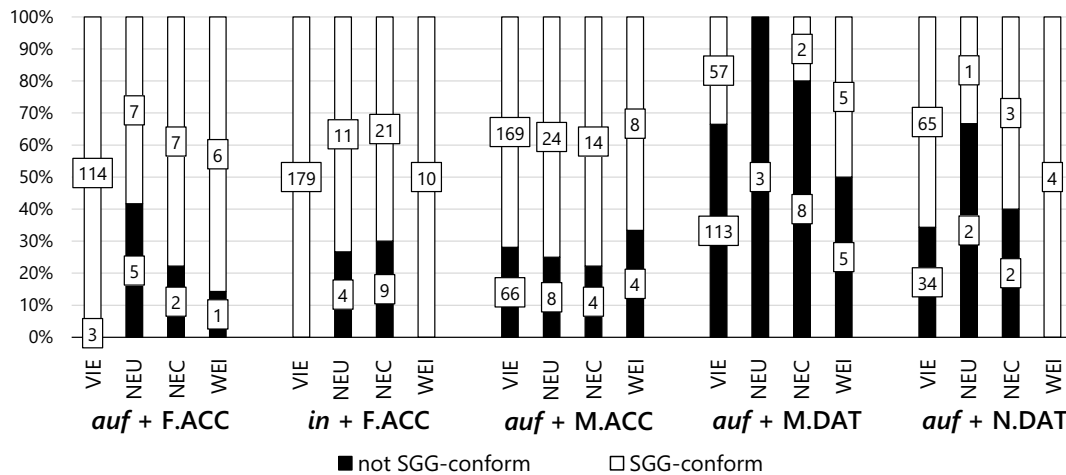
Figure 7: Areal distribution of non-SGG-conform contractions of certain preposition–determiner combinations (*n* > 10).

To sum up, informants from all Bavarian speaking areas in Austria use certain non-SGG-conform contractions. Additionally, they occur both in rural dialects and in urban, (close-to-)standard speech styles.

The question arises whether the above described contraction types are distributed evenly throughout the corpus as well. Figure 7 allows for preliminary assumptions even though the number of examples especially for the rural places is limited. Obviously, the contractions of feminine determiners in accusative are more common in the rural dialects (from the Central Bavarian and the transition area) and hardly occur in urban more formal varieties or CDS. Contractions of the preposition *auf* 'on' and masculine or neuter determiners, however, are common throughout all varieties in the corpus.

4 Discussion

Overall, the three linguistic main variables, p-choice, case government and preposition–determiner contractions, yield quite different results: While we find mostly regional effects for p-choice (particularly in directed motion constructions), case marking shows more social variation (especially with respect to SES). The non-SGG-conform use of preposition–determiner contractions turns out to be widespread across all regions and social groups investigated and appears even in near-standard registers.

4.1 P-choice

Regarding p-choice, we do not only find areal variation between rural regions and the urban region of VIE but also variation between different rural regions: WEI has a significantly lower rate of SGG-conform p-choice than the other rural locations. Particularly, older participants from WEI show a particularly high rate of non-SGG-conform p-choice, which can be attributed to frequent p-drop.

As indicated in Section 1.2, despite being frequently discussed in the context of ethnolects in German and Austrian cities, this very salient phenomenon is also found in native German in Austria. On the one hand, Kerschhofer-Puhalo (2019) reports p-drop in directed motion, locative and temporal constructions in informal speech of autochthonous persons of various ages living in Vienna. On the other hand, p-drop is regarded typical for South Bavarian dialects (see Oberdorfer and Weiß 2016; Lenzhofer 2017). Pohl (1989, 2009) mentions p-drop in directed motion constructions as an alleged result of language contact

with Slovene typical for Carinthian dialects. Our analysis gives evidence for frequent p-drop South Bavarian dialects (in our case in WEI), particularly in directed motion constructions such as (23).

(23)	WEI-f-o	*i*	*bin*	*gonz*	*stolz*	*is*
		I.NOM	AUX.PRS.1S	very	proudly	DEF.ART.F.SG.ACC
		erscht-e	*mol*	*schui*	*gongen*	
		first-N.SG.ACC	time	school.ACC	go-PST.PTCP	
		damit				
		there-with				
		'I went to school for the first time with it very proudly.'				

The few instances of p-drop from the other rural locations (2 from NEC and 4 from NEU vs 17 from WEI) attest the existence of p-drop outside of the South Bavarian area. However, it is less frequent and pertains to different constructions: while 10 out of 17 examples from WEI (i.e. 58.82%) are directed motion constructions, temporal and locative contexts prevail in the other locations. The data from VIE do not include any instance of p-drop, which substantiates the claim by Kerschhofer-Puhalo (2019, 141) that p-drop is sensitive to stylistic variation and obviously not adequate in (close-to-)standard contexts. Whether this is true for the South Bavarian area requires follow-up investigation.

In our sample, *auf* 'on, onto' is the most frequently selected non-SGG-conform preposition, which indicates an overrepresentation of *auf* 'on' in German in Austria. As far as the dialects are concerned, our results from four Bavarian regions of Austria are consistent with Mikosch's (1987, 46) data on Alemannic varieties, who also finds an overrepresentation of *auf* 'on' in the Austrian region of Vorarlberg in comparison to different Alemannic regions of Germany, particularly in the younger generation (which was born in approximately the same time as the older generation of our current study). In contrast to p-drop, the use of *auf* 'on' in non-SGG-conform PPs is particularly relevant in VIE, NEU (Central Bavarian) and NEC (transition area), where it most frequently appears in directed motion constructions such as in (24a). Contemporary written SGG prefers constructions such as (24b).

(24)	(a)	NEC-m-y	*vüü*	*zu*	*bequem,*	*dass*	*i*	*auf*
			much	too	lazy	that	I.NOM	on
			d=/	*a*	*ondere*			
			DEF.ART.F.SG.ACC=/	INDEF.ART.F.SG.ACC	other.F.SG.ACC			
			uni	*fohr*				
			university	drive.PRS.1S				
			'much too lazy to drive to another university'					
	(b)	SGG (Die Zeit, 17.03.2017; DWDS)	*Man*	*muss*	*ja*	*mit*	*irgendwas*	
			one.NOM	must.PRS.3S	yes	with	something	
			zu=r	*Uni*	*fahren.*			
			to=DEF.ART.F.SG.DAT	university	drive.INF			
			'As you know, one has to ride to university somehow'					

Generally, directed motion constructions are the context with most non-SGG-conform instances of p-choice. In the rural locations, 34–44% of all cases deviate from SGG by either selecting *auf* 'on' or p-drop. This suggests the need for a generic directed motion construction in spoken German in Austria, i.e. the need to express the goal of a motion event without specifying its exact location relative to the PP inner object (e.g. inside university or next to university). Whether such a generic construction exists requires further research. Two aspects require consideration in this context. First, some of these

constructions (*auf Besuch gehen* 'to visit somebody', *auf Urlaub gehen* 'to go on holiday') and their local equivalents (*auf Besuch sein* 'to visit somebody', *auf Urlaub sein* 'to be on holiday') can be characterized as phraseolexemes. These are common in and typical for SAG (see maps in Dürscheid et al. 2018: *auf/zu Besuch*, *auf/in (den) Urlaub gehen/fahren*, *auf/im/in Urlaub sein*). As shown in Section 3.1, these phraseolexemes account for over half of all non-SGG-conform p-choices in (close-to-)standard registers from VIE, which corresponds to the expected pattern.

Second, these phraseolexemes as well as several other constructions including directed motion constructions in general as well as p-choice in PATIENT arguments of mental verbs (*denken* 'think', *erinnern* 'remember' and *vergessen* 'forget') can be analyzed in the context of language contact with Slavic languages or the Central-European area of linguistic convergence, respectively (see Newerkla 2007). The constructions *mental verb* + ARG$_{auf+ACC}$ have structural equivalents in neighbouring Slavic languages such as Czech (*myslet na něco* 'think about something', *vzpomínat se na něco* 'remember something' *zapomínat/zapomenout na něco* 'forget about something'); however, it is not yet clear whether all of them correspond to the respective constructions in German in Austria regarding their semantic and/or syntactic distribution as shown for *vergessen* and *zapomínat/zapomenout* 'forget' in Kim et al. (2020).

Regarding directed motion constructions, already Schuchardt (1884, 115) lists several examples with non-SGG-conform choice of *auf* 'on' in the "jargon" of Slavic and especially Czech or Polish L2-learners of German (e.g. *auf die Schule/Predigt/etc. gehen* 'to go to school/the sermon/etc.'), suggesting a language contact explanation (through pattern replication). However, in Czech linguistics the generic use of the equivalent Czech preposition *na* 'on, at' in directed motion constructions is only being discussed as an innovation in spoken and written standard registers from the 1960s onwards (e.g. Mára 1968; Čechová 1981; Hrdlička 2015). Mára (1968, 134) assumes this change to have begun in the 1940s. Still, earlier descriptions of Eastern Moravian dialects suggest that it was common at least in some parts of the Czech language area in the nineteenth century (Bartoš 1886, 186). Generally, much research remains to be done regarding the areal distribution and diachronic development of (generic) directed motion constructions in German and Czech. It is therefore not possible to unequivocally speak of the use of the preposition *auf* 'on' in such contexts in German in Austria as a contact-induced phenomenon. Since the patterns used in German in Austria and Czech seem to be structurally and semantically equivalent, we may however treat the (generic) directed motion construction with Germ. *auf* 'on' or Czech *na* 'on, at' as an areal, Central European phenomenon (see Januška 2020 for a literature review on the Central European linguistic area) and – in terms of Muysken (2010, 2013) – suggest convergent development under prolonged stable bilingualism. Probably, other languages in Central Europe developed similar patterns (see Mára 1968; Newerkla 2007).

Interestingly, Pohl (1989, 64) assumes that p-drop in directed motion constructions has spread from the Slovenian-German bilingual area in Southern Carinthia. In later publications, however, he expresses uncertainty whether this phenomenon can be traced to language contact or not (Pohl 2009, 127). He presumes the Slovenian two-way prepositions *v* 'in' and *na* 'on, at', which reflects the older Slavic system of spatial prepositions (see Herrity 2000, 262), to be incompatible with the South Bavarian system that according to his opinion prefers *auf* 'on' in any case, similar to what our data have revealed for other Bavarian varieties in Austria. According to Pohl's early assumptions, German-Slovene bilinguals in Southern Carinthia might have chosen to drop the semantically almost emptied preposition in generic constructions – a strategy that can be referred to as the recourse on universal principles governing improvised language behaviour (Muysken 2013, 716). However, like the situation for Czech and German, the distribution and use of *v* 'in' and *na* 'on' in directed motion constructions in Slovene dialects requires further investigations to substantiate this assumption.

To sum up, our analyses show that p-choice varies areally throughout Austria. Partly, this variation, especially regarding directed motion constructions, may possibly be explained by areal convergence in Central Europe and language contact with neighbouring languages.

4.2 Case marking

Most concordances in the complete sample deviate from SGG due to case marking within the PP. These can mainly be traced to widespread case syncretism in Bavarian dialects. In the statistical analyses, deviations concerning case government were strongly associated with sociodemographic variables. Both SES and age displayed highly significant effects, but the strongest effects were shown by a model that investigated an interaction between SES and region (urban vs rural): whereas LSES participants from the urban region used comparably fewer SGG-conform case forms within PPs than their urban HSES peers, the LSES and HSES participants from the rural regions showed only slight differences. These findings are underpinned by the separate analyses of data sub-samples: in the urban data, the most significant SES effect concerns case marking, which indicates that LSES people use fewer SGG-conform case forms within PPs than HSES people, while in the rural data, we do not find any significant effects for case marking. The examination of only data from younger participants yields the urban/rural contrast, too: Young people from VIE use considerably more SGG-conform case forms than young people from the rural regions. An additional SES effect can also be found only for the urban data. If the urban data are examined separately, generally only SES effects (regarding several aspects of variation in PPs taken account of here) are found. Our results are thus consistent with those of language attitudinal studies (e.g. Moosmüller 1991; Steinegger 1998), according to which dialect use is associated with 'lower social classes' in urban areas, whereas dialect is widespread regardless of people's social status in rural regions.

Concerning case syncretism, we find evidence for a unified case (germ. *Einheitskasus*) in noun plurals as well as indications for such a common case in masculine and neuter singular nouns. As outlined in Section 1.3, the unified case in plural paradigms as well as the tendency for case syncretism in the masculine singular has been described earlier (see Zehetner 1978, Weiß 1998), whereas accounts focusing on syncretism in neuter paradigms are lacking to our knowledge. Regarding the areal distribution, our data indicate that syncretism in plural paradigms is most common in South Bavarian WEI (see also Lipold 1976 on the East Tyrolean location Kals) and least common both in Central Bavarian NEU and VIE. In the latter, the SES effect also applies to the frequency of syncretism in plural paradigms.

4.3 Preposition–determiner contractions

Preposition–determiner contractions are widespread across all Bavarian regions of Austria and show little regional and sociodemographic variation. Accordingly, the statistical analysis of the complete dataset does not show any significant effect, neither for regional nor for sociodemographic or setting variables. The separate analyses of sub-samples of our data however suggest that for certain groups of informants the use non-SGG-conform contractions varies between settings or regarding frequency. In the rural data, we find a slight effect of SES/age on contractions, indicating that older LSES participants use fewer SGG-conform contractions than younger HSES participants. In the urban data, a slight trend is found for an interaction between SES and setting: whereas HSES adults show a slightly higher SGG-conform use of contractions in ADS as opposed to CDS, LSES adults use slightly more SGG-conform contractions in CDS. These results suggest that HSES parents are more likely to adapt their utterances to the formal interview-setting with the researcher, while LSES parents might focus on their children's educational prospects, which corroborates earlier attitudinal findings: according to Wiesinger (2008), urban parents believe these prospects to increase if children grow up with (close-to)-standard varieties, and therefore prefer (close-to)-standard varieties over dialect. Wiesinger (2008) describes these preferences as specific for urban areas.

Even though the proportion of non-SGG-conform contractions does not significantly vary within the analyzed corpus, the investigation of the most common contraction types suggests that these are subject to areal as well as register variation. For instance, non-SGG-conform contractions of prepositions with feminine singular determiners in accusative case (*auf die > aufd* 'on(to) the.F.SG.ACC', *in die > ind* 'in(to) the.F.SG.ACC') are most common in rural dialects of the Central Bavarian and the transition area. According to

our data, besides the standardized contractions of *an* 'at' with masculine or neuter determiners in dative case, the contraction form *am* has three possible sources involving the preposition *auf* in German in Austria: (1) *auf dem* 'on the.M.SG.DAT', (2) *auf dem* 'on the.N.SG.DAT' and (3) *auf den* 'on(to) the.M.SG.ACC'. Despite not being codified by the *Duden* (Wöllstein et al. 2016), (1) and (2) are regarded SAG even in written texts (see Dürscheid et al. 2018: *Gebrauch von Präpositionen – am/auf dem* 'Usage of prepositions – am/auf dem'). This status is also evident in our data: in all investigated locations at least 50% of all combinations of *auf* 'on' and the masculine singular dative determiner (1) are contracted. They are least common in the South Bavarian dialect of WEI. Contractions of type (2) are not attested in WEI at all but are quite common in the other locations and varieties (at least 35% of all possible instances in the corpus). The form *am* as a result of the contraction of *auf* with the masculine singular accusative determiner (3) is explicitly marked 'incorrect', i.e. as not part of the standard variety by Ebner (2008: 46). However, according to our data it is equally distributed throughout different (Bavarian) varieties of German in Austria. Approximately 25% of all possible instances are contracted.

Notably, like in standard German, there are no contractions involving plural determiners. Thus, contractions may be regarded as singular markers, particularly in such dialects where contractions are found in all genders.

Altogether, contraction forms appear more common in Central Bavarian dialects and such from the transition area than in South Bavarian varieties. Contractions leading to the form *am* are frequently used in urban (close-to-)standard registers as well.

5 Conclusion and future research perspectives

This study investigated recordings of informal and formal speech from the three main Bavarian dialect areas in Austria in order to inductively describe the (sociolinguistic) variation of and within PPs with two-way prepositions. As point of comparison, we used a Germany-centred and normative notion of standard German. In our context, variation is thus operationalized as the number of non-SGG-conform PPs. Generally, PPs may vary regarding three structural aspects, namely (1) preposition choice (p-choice), (2) case marking and (3) preposition–determiner contractions. To make a long story short,

(1) p-choice considerably varies across dialect regions, particularly in directed motion constructions. The South Bavarian data stand out due to the high frequency of p-drop, whereas in other regions, non-SGG-conform usage of *auf* 'on(to)' is particularly frequent. As elaborated in Section 4, these phenomena can be investigated in the context of linguistic convergence in Central Europe.

(2) Non-SGG-conform PP-internal case marking can be explained by dative-accusative case syncretism in Bavarian dialects, which is particularly frequent in plural contexts and appears to be most prominent in South Bavarian varieties. In the analyzed corpus, non-SGG-conform case marking is mainly associated with the informants' SES: In urban areas, LSES informants tend to use significantly more non-SGG-conform case forms than HSES informants. No SES-related difference can be found in rural locations. This provides evidence for the fact that in the urban areas, dialectal features are related to the lower classes and are thus social markers, whereas in rural Austria this is not the case.

(3) Non-SGG-conform preposition–determiner contractions are distributed relatively equally across all varieties, groups and registers in focus, but are limited to singular contexts. However, the fact that LSES parents use fewer contractions when speaking to their children hints at a high degree of salience. This probably leads parents with lower standard competence to avoid certain contraction forms if raising their children in (close-to-)standard varieties. Moreover, the results indicate that *am* – resulting from the contraction of *auf* 'on(to)' and either the masculine singular determiner in dative or accusative or the neuter singular determiner in dative – is quite frequent in rural dialects as well as urban (close-to-)standard varieties despite the fact that it is not regarded part of SAG with masculine singular accusative determiners. Generally, contractions seem to be more frequent in the Central Bavarian and the transition area.

This study has of course some limitations: The participant sample is rather small and the regional distribution of the locations does not allow final conclusions about the entire Austrian area. Thus, future studies should focus on single aspects based on more data from more participants (including bilingual speakers), more locations and more different settings (particularly formal interviews in addition to the informal conversations of the rural participants). Regarding p-choice, investigations into the diachronic development with a contrastive character promise to yield insights into aspects of language contact and areal convergence in Central Europe. For such analyses, newspaper corpora may complement contemporary spoken data, as many of these specific Austrian variants are used in (close-to-)standard registers. Concerning case syncretism in plural or singular paradigms in German in Austria, further state-of-the-art sociolinguistic research is needed in order to determine its regional distribution and 'vertical' variation. Furthermore, preposition–determiner contractions should also be investigated in their diachronic development to be able to trace back grammaticalization processes and relate them to results on Alemannic varieties or Ruhr German.

This study tried to lay the foundations for this type of future research by providing data-based hypotheses. Such research will provide insight into the rich regional, social and situational variation of PP two-way prepositions in German in Austria.

Abbreviations

ADS	adult-directed speech
adv	PPs as sentence adverbials
ARG	argument
arg-1	PPs as directional or positional arguments
arg-2	PPs as prepositional arguments
CDS	child-directed speech
HSES	higher socioeconomic status (at least high school diploma)
LSES	lower socioeconomic status (no high school diploma)
NEC	Neckenmarkt
NEU	Neunkirchen/Ybbs
o	older informants
p-choice	preposition choice
p-drop	preposition drop
SAG	Standard Austrian German
SGG	Standard German German
SES	socioeconomic status
VIE	Vienna
WEI	Weißbriach
y	young informants

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Data availability statement: The datasets analyzed in the current study are available from the corresponding author on reasonable request. The original corpus data collected within the Special Research Programme "German in Austria: Variation – Contact – Perception" (FWF F60-G23) will be publicly available after project completion in 2024. Closer information will be available at the project homepage (https://dioe. at/en/). The corpus data collected within the project "Investigating Parental and Other Caretakers' Utterances to Kindergarten Children" (INPUT, WWTF SSH11-027) are not publicly available due to aspects of data privacy.

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Appendix

Table A1: Contraction forms of two-way prepositions codified by the *Duden* (Wöllstein and Dudenredaktion 2016), non-obligatory forms marked with *

		MASC.SG. *der* 'the'	NEUTR.SG. *das* 'the'
an 'at'	DAT	am	am
	ACC		ans
auf 'on'	DAT		
	ACC	aufn*	aufs
in 'in'	DAT	im	im
	ACC		ins
hinter 'behind'	DAT	hinterm*	hinterm*
	ACC	hintern*	hinters*
neben 'beside'	DAT		
	ACC		
über 'above'	DAT	überm*	überm*
	ACC	übern*	übers*
unter 'under'	DAT	unterm*	unterm*
	ACC	untern*	unters*
vor 'in front of'	DAT	vorm*	vorm*
	ACC	vorn*	vors*
zwischen 'between'	DAT		
	ACC		

Table A2: Overview over deviations in p-choice according to argument status (with semantic roles) and prepositions

	auf 'on, onto'	No prep.	*in* 'in, into'	*an* 'at'	*über* 'above'	*unter* 'under'	*vor* 'before, in front of'	
adv	21	4	9	6		3	1	44
TEMP	**11**	3	6	5		3	1	29
LOC	8	1	3	1				13
MODAL	2							2
arg-1	86	15	6	2				109
GOAL	**63**	**11**	4	1				79
SOURCE	3		1					4
LOC	**20**	4	1	1				26
arg-2	14	4	4	1	7		1	31
PAT	7	4	2	1	6		1	21
LOC	2							2
Others[a]	5		2		1			8
	121	**23**	**19**	**9**	**7**	**3**	**2**	**184**

[a]Arguments expressing MANNER (2), MEANS (4) and REGARD (2).

Table A3: Effects of different independent variables on p-choice in the full corpus and different subcorpora (z values, significance levels; AIC values given in square brackets, models with best fits for (sub)corpus highlighted in bold)

| Independent variables | | Full corpus | Subcorpora tested | | | | |
| | | | Regional aspects | | Social aspects | | |
			Urban	Rural	Young	Young HSES	LSES
Social	**SES**	(A.1) n.s. [890.2525]	(A.7) n.s. [390.7555]		(A.9) LSES 1.653˙ [648.5205]		
	Age	(A.2) young 2.776** [883.165]					
Regional	**Place**	**(A.3)** **VIE 2.746**** **WEI −2.635**** NEU −1.876˙ **[859.4079]**		**(A.8)** WEI −2.945** NEU −2.176* **[509.1945]**	(A.10) VIE 3.247** [630.2075]	(A.12) VIE 3.045** [541.4003]	**(A.14)** **WEI −3.228**** **[371.2599]**
	Urban/rural	(A.4) urban 6.131*** [861.7741]			**(A.11) urban 5.721**** **[628.1401]**	**(A.13) urban 5.048**** **[539.0079]**	(A.15) urban 3.513*** [376.5529]
Data specific	**Setting**	(A.5) CDS 2.829** [882.4053]					
	Formality	(A.6) n.s. [889.8847]					

Table A4: Models with two variables (with and without interaction): effects on p-choice in the full corpus and different subcorpora (*z* values, significance levels; AIC values)

(Model no) variable 1: variable 2(+)	Categories of variable 1	Categories of variable 2	Interaction (+)	AIC
Full corpus				
(B.1) age:place	n.s.	VIE 2.827**, WEI −2.733**, NEU −1.862˙		860.888
(B.2) SES:urban+	n.s.	urban 4.697***	n.s.	865.4681
Rural subcorpus				
(B.3) age-SES:place	n.s.	WEI −3.158**, NEU −2.207*,		510.4204
(B.4) age-SES:place+	n.s.	NEU −1.825˙	LSES:WEI −1.897˙	509.451
Young subcorpus				
(B.5) SES:place	n.s.	VIE 3.022**		632.0526
(B.6) SES:urban	n.s.	urban 5.137***		630.0322

Table A5: Types of deviations from the exogenic German standard regarding case government or marking

	Position		Number/gender		Expected case	
Determiner elision (det-el): 154 (52.74%)	*DET*	154	*SG.M*	124	*DAT*	71
			SG.F	5	*ACC*	83
			SG.N	25		
Syncretism in plural paradigms (syn-pl): 82 (28.08%)	*DET*	27	*PL.M*	17	*DAT*	82
	ADJ	6	*PL.F*	21		
	N	22	*PL.N*	41		
	DET+N	26	*PL.X*	3		
	ADJ+N	1				
Syncretism in singular paradigms (syn-sg): 47 (16.10%)	*DET*	25	*SG.M*	23	*DAT*	45
	POSS	22	*SG.F*	3	*ACC*	2
			SG.N	21		
Form choice (f-ch): 9 (3.08%)	*DET*	7	*SG.M*	7	*DAT*	2
	N	1	*SG.N*	1	*ACC*	7
	DET+ADJ	1	*PL.N*	1		

Table A6: Effects of different independent variables on case government in the full corpus and different subcorpora (z values, significance levels; AIC values given in square brackets, models with best fits for (sub)corpus highlighted in bold)

Independent variables		Subcorpora tested					
		Full corpus	Areal aspects		Social aspects		
			Urban	Rural	Young	Young HSES	LSES
Social	SES	(C.1) LSES −3.528*** [1923.052]	**(C.7) LSES −6.014*** [860.2739]**	(C.9) n.s. [953.477]	(C.11) LSES −2.133* [1362.093]		
	Age	(C.2) young 3.059** [1926.217]					
Areal	Place	(C.3) VIE 3.767*** [1916.311]		(C.10) n.s. [954.2681]	(C.12) VIE 2.525* [1356.908]	(C.14) VIE 6.426*** [743.6563]	(C.16) VIE 2.836** [1163.356]
	Urban/rural	(C.4) urban 5.239*** [1913.523]			(C.13) urban 4.015*** [1353.32]	**(C.15) urban 7.874*** [741.017]**	**(C.17) urban 3.2020** [1162.032]**
Data specific	Setting	(C.5) n.s. [1933.519]	(C.8) n.s. [883.0435]				
	Formality	(C.6) n.s. [1933.859]					

Table A7: Models with two variables (with and without interaction): effects on case government in the full corpus and different subcorpora (z values, significance levels; AIC values, models with best fits for (sub)corpus highlighted in bold)

(Model no) variable1:variable2(+)	Categories of variable 1	Categories of variable 2	Interaction (+)	AIC
Full corpus				
(D.1) SES:urban	LSES −4.850***	Urban 6.568***		1895.374
(D.2) SES:urban+	n.s.	**Urban 8.155*****	**LSES: urban −4.036*****	**1884.063**
Urban subcorpus				
(D.3) SES:setting	LSES −5.924***	n.s.		861.3725
(D.4) SES:setting	LSES −3.963***	n.s.	n.s.	863.1244
Rural subcorpus				
(D.5) SES-age:place	LSES −1.807˙	n.s.		953.5363
(D.6) SES-age:place+	LSES −1.907˙	n.s.	n.s.	956.0738
Young subcorpus				
(D.8) SES:place	LSES −6.705***	VIE 6.274**		1328.416
(D.9) SES:urban	**LSES −6.555*****	**Urban 8.352*****		**1325.687**

Table A8: Non-SGG-conform contractions – overview (SGG orthographic form and a Bavarian spoken form in the first column)

	auf 'on, onto'	*in* 'in, into'	*über* 'over'	
F.ACC (*die* [də])	*aufd* 11 of 145 (7.6%)	*ind* 13 of 234 (5.6%)	*überd* 1 of 32 (3.1%)	25
F.DAT (*der* [dɐ])	*aufd* 1 of 160 (0.6%)			1
M.ACC (*den* [dən])	*am* 82 of 297 (27.6%)	*indn* 2 of 114 (1.7%)		84
M.DAT (*dem* [dəm/dən])	*am* 129 of 193 (66.8%)			129
N.DAT (*dem* [dəm/dən])	*am* 38 of 111 (34.2%)			38
	261	15	1	277

Additional examples

(A) WEI-o-LSES-ADS

und	*immer*	*is*	*die*	*k/*
and	always	AUX.PRS.3SG	DEF.ART.F.SG.NOM	k/
in	*die*	*kir-tig-ein-lad-ung*	*donn*	
in	DEF.ART.F.SG.ACC	ker-messe-in-vit-ation	then	
da-bei	*g-wes-en.*			
there-with	PST.PTCP-be-PST.PTCP.			

'the i/ in the invitation to kermesse always used to come with it'

(B) VIE-y-HSES-ADS

in	***die***	***nachbar-ortschaft***
in	DEF.ART.F.SG.ACC	neighbor-location
gib-t=s	*dann*	*die*
give-PRS.3SG=it.NOM	then	DEF.ART.F.SG.ACC
volks-schule		
primary-school		

'in the neighbouring village there is a primary school'

SGG   *in der Nachbarortschaft* […]

(C) VIE-y-LSES-CDS

na	*weil*	*er*	***im***
well because	he.NOM	in=DEF.ART.M.SG.DAT	
baum	*rein-ge-flog-en*	*is(t)*	
tree	into-PST.PTCP-fly-PST.PTCP	AUX.PRS.3S	

'well, because he flew into the tree'

SGG   *na, weil er in den Baum hineingeflogen ist*

(D) NEU-o-LSES-ADS

wos	*mi*	*eigentlich*	*i=m*
what	I.ACC	actually	in=DEF.ART.N.SG.DAT
i=m	***mein***	***leem***	*eigentlich*
in=DEF.ART.N.SG.DAT	my.N.SG.ACC	life	actually
a=m	*meist-en*		
on=DEF.ART.N.SG.DAT	most-N.SG.DAT		
gwurmt	*hot*		
PST.PTCP-irritate-PST.PTCP	AUX.PRS.3SG		

'what actually irritated me most in my life'

SGG   *was mich eigentlich in meinem Leben am meisten geärgert hat*

(E) VIE-y-LSES-CDS

geh	***a=m***	*tisch*
go.IMP.2SG	on=DEF.ART.M.SG.DAT	table

'go to the table'

SGG   *geh zum Tisch* (< *?geh an den Tisch*)