A morphological case approach to PPs

Boris Haselbach & Marcel Pitteroff

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Abstract

Against the background of parallelism between syntactic domains with respect to the argument structure of verbs and prepositions, we offer a morphological case account to simplex spatial prepositions in German which exhibit an alleged lexicalized distribution of dative and accusative case on their complement DPs. We identify dative as the default (or unmarked) case and accusative as an inherent case for prepositions. We achieve this by discussing several hypothetical configurations of dative and accusative case as instances of inherent, dependent, and unmarked case in the prepositional domain. In the course of this discussion we will identify several questions that will turn out to be relevant for an architecture of prepositions. One, for example, is whether the cognitively well-established Figure/Ground relation is reflected by prepositional syntax. We can derive the simplex spatial prepositions in German by applying a word-syntactic approach in the spirit of Distributed Morphology. Thereby we can not only correctly predict the case assignment of those prepositions that show a regular alternation between a locative use with a dative complement and a directional use with an accusative complement but we can also account for those prepositions that do not show this alternation. As a side benefit of our approach we can also provide a structural explanation for the notoriously ambiguous preposition über (‘above’ vs. ‘over’/‘across’) in its spatial readings.

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Keywords: morphological case, prepositions, parallelism, spatial PPs in German, Figure/Ground relation

1 Introduction

Discussing the case assigning properties of German prepositions, some authors (Zwarts 2005, Van Riemsdijk 2007, Abraham 2010) consider dative as some kind of default case in the prepositional domain. Identifying a default case for a particular syntactic domain is in fact a phenomenon known from the verbal domain, where, in German, nominative is considered to be the default case. This leads to the question of parallelism between structural domains.

1.1 Parallelism of V and P

With respect to argument structure, Svenonius (2003, 2006, 2007) argues for a parallelism between verbs and prepositions. For the verbal domain the asymmetry between external and internal argument has been captured by means of the Split V Hypothesis (e.g. Larson 1988, Kratzer 1996, a.o). While the internal argument of a verb (e.g. Patient) is the complement of V, the external argument (e.g. Agent) is not projected by V itself but it is introduced in the specifier of a separate syntactic projection on top of V, i.e. little v (or sometimes called Voice, e.g. Kratzer 1996). Svenonius extends this idea to the prepositional domain by claiming that Figure and Ground (Talmy 1975, 2000) are to a preposition what Agent and Patient are to a verb. He thus formulates the Split P Hypothesis (Svenonius 2003) claiming that the internal argument of a preposition (Ground) is the complement of P while its external argument (Figure) is licensed in a separate projection on top of P. Svenonius refers to the head of this projection as little p. In particular, he proposes the parallel structures of verbs and prepositions as indicated in (1).
With respect to case, Zwarts (2005), Van Riemsdijk (2007), Abraham (2010) have identified a default case in the prepositional domain. We should thus look for a case theory that can readily implement the concept of a default case. We find such an approach in the post-syntactic **morphological case theory**, originally proposed in Marantz (1991) using the term *dependent* case theory, which thus presents itself as a good candidate to capture the case distribution in spatial PPs. This approach has mainly been adopted for the verbal domain (Marantz 1991, McFadden 2004, Bobaljik 2008, Pesetsky 2011, Baker 2012, Schäfer 2012, Sigurðsson 2012). For economy reasons in general, and with respect to the parallelism hypothesis in particular, we assume that a case theory should not be restricted to apply to a certain domain only, but it is expected to extend to other domains as well. While, for instance, Grosz (2008) has offered a morphological case approach to the nominal domain, nothing comparable has been done for the prepositional domain. It is the task of this paper to fill this gap, working out the predictions made by an extension of a morphological case theory for the prepositional domain.

Before we proceed, let us briefly comment on other case theories proposed for the prepositional domain. In the literature, several different accounts of the case licensing properties of spatial prepositions in German have been offered (e.g. Bierwisch 1988, 1996, Wunderlich 1991, Koopman 2000, Kracht 2002, Den Dikken 2003, 2010, Zwarts 2005, 2006, Bayer and Bader 2007, Van Riemsdijk 2007, Gehrke 2008, Arsenijević and Gehrke 2009, Biskup 2009, Caha 2010, Noonan 2010). Yet, only some of those case theories are such that they can implement the notion of a default case, which, however, is very well motivated for the prepositional domain (see Zwarts 2005, Van Riemsdijk 2007, Abraham 2010, and the discussion below). The theories that involve a default case, however, have the shortcoming that they seem to be domain specific, being ap-
applicable to the prepositional domain exclusively. The case theory to be applied in this paper has none of these shortcomings: it incorporates the notion of a default case, and is not domain-specific (see Marantz 1991 for suggestions along these lines).

1.2 The empirical domain

Three of the four cases in German can occur within a PP: dative, accusative, and genitive. Genitive is mainly restricted to complex prepositions that incorporate some nominal element, e.g. *jenseits* (‘beyond’), *außerhalb* (‘outside of’), *entlang* (‘along’), etc. Hence, genitive is not in the scope of this study. Here, we focus on the distribution of dative and accusative case within the PP, in particular in the spatial prepositional domain. Further, we restrict ourselves to simplex spatial prepositions in German.¹

Some German spatial prepositions show a case alternation related to different interpretations of the PP: they have a locative interpretation with a dative complement whereas they have a directional interpretation when used with an accusative complement. Examples are *in* (‘in’), *unter* (‘under’), *über* (‘above’), *hinter* (‘behind’), etc.

(2) a. Maja flog im Wald. (locative)
Maja flew in-the.DAT forest

b. Maja flog in den Wald. (directional)
Maja flew in the.ACC forest

There are three groups of spatial prepositions that do not alternate. The first group has a directional interpretation and always co-occurs with an accusative complement. A locative variant with dative is missing. The prepositions belonging to this group are *durch* (‘through’), *um* (‘around’), and *über* (‘over’). Note that the preposition *über* is special such that it occurs as an alternating preposition with the meaning ‘above’ and as non-alternating directional preposition with accusative meaning ‘over’/’across’. We will address the ambiguity of *über* in Section 5.3 in detail.

(3) a. *Maja flog durch dem Wald. (*locative)
Maja flew through the.DAT forest

¹Note that some prepositions, such as *in*, contract with particular determiners, e.g. *in* (‘in’) and *dem* (dative ‘the’) fuse to *im*. We consider this to be a phonological phenomenon that is not at issue here. For now, we take the fused forms to be tantamount to the non-fused forms.
b. Maja flog durch den Wald. \textit{(directional)}
Maja flew through the\textit{ACC} forest

The second group has a directional interpretation but co-occurs with a dative complement only. A locative variant and also a variant with another case, e.g. accusative, is missing. Prepositions belonging to this class are \textit{aus} (‘out of’), \textit{nach} (‘to’, in the spatial sense), \textit{von} (‘from’), and \textit{zu} (‘to’).

(4) a. Maja flog aus dem Wald. \textit{(directional/*locative)}
Maja flew out-of the\textit{DAT} forest
b. *Maja flog aus den Wald. \textit{(*directional/*locative)}
Maja flew out-of the\textit{ACC} forest

The third group of spatial prepositions co-occurs only with a dative complement and exhibits locative semantics. A directional counterpart with accusative is missing. There is only one preposition belonging to this group: \textit{bei} (‘at’).

(5) a. Maja joggte beim Wald. \textit{(locative)}
Maja jogged at-the\textit{DAT} forest
b. *Maja joggte bei den Wald. \textit{(*directional)}
Maja jogged at the\textit{ACC} forest

Table 1, which is adapted from Zwarts (2006) and Van Riemsdijk (2007), gives an overview of the simplex spatial prepositions in German. The prepositions belonging to the exceptions mentioned above are marked in italics.

<table>
<thead>
<tr>
<th>dative</th>
<th>accusative</th>
</tr>
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<tbody>
<tr>
<td>locative</td>
<td>bei, an, auf, hinter, neben, in, über, unter, vor, zwischen</td>
</tr>
<tr>
<td>directional</td>
<td>\textit{aus, nach, von, zu}</td>
</tr>
</tbody>
</table>

Table 1: Simplex spatial preposition in German

This paper is structured as follows. In Section 2 we provide evidence in favor of dative case being the default case in the prepositional domain. In Section 3 we put forth the
basic assumptions we make with respect to the syntactic decomposition of spatial PPs. In Section 4 we begin to extend the morphological case approach to the prepositional domain. We do this by discussing how the two cases in the prepositional domain, accusative and dative, can potentially map onto the three case types, unmarked, dependent, and inherent. Based on this discussion, we provide an implementation of the morphological case approach to spatial PPs in German in Section 5. There, we will also briefly touch upon the notoriously ambiguous preposition *über*. Section 6 concludes.

2 Dative as unmarked case in PPs

Before we begin the discussion on dative in the prepositional domain, we want to address a terminological issue. In the literature that we build our discussion on (Zwarts 2005, Van Riemsdijk 2007, Abraham 2010) dative is referred to as the default case in PPs. Technically, we face a terminological issue when we want to operationalize the dative-as-default-in-P idea in terms of a morphological case approach. Marantz (1991) distinguishes default and unmarked case. For him, default case is a general language-specific case that applies when no other case realization principle is applicable. Unmarked case on the other hand is the ‘default’ case in a particular syntactic domain, which is thus environment-sensitive. Based on this distinction, we assume that dative is the unmarked case in the prepositional domain. This is why we will use, throughout the remainder of this paper, the term unmarked case rather than default case, although we refer to literature where the term ‘default’ is used instead.

The observation by Zwarts (2005) concerning the development of the case system from Proto-Indo-European (PIE) to German is that several PIE cases conflated into German dative case. As illustrated in (6), the PIE cases that conflated into German dative are precisely those cases that express configurations that correspond to prepositions in German. For example, PIE instrumental case roughly corresponds to German *mit* (‘with’) plus dative, PIE ablative case to German *von* or *aus* (‘from’) plus dative, and PIE locative case to a range of German spatial prepositions such as *in* (‘in’), *an* and *auf* (‘on’) plus dative, etc.

\[\text{In fact Schütze (2001) identifies nominative as such a general default case for German.}\]
Van Riemsdijk (1983, 2007) proposes that dative is the unmarked case in oblique domains in general. Assuming that the prepositional domain is such an oblique domain, we reproduce his arguments in the following. For the adjectival domain, Van Riemsdijk (1983, 2007) argues that non-PP arguments are overwhelmingly in the dative. Considerably less adjectives license genitive or accusative, consider (7).

(7) der seinem Vorgesetzten ähnliche / treue / unbekannte / verhasste / the his.DAT boss similar / loyal / unknown / hated / ergebene / gleichgültige Mann devoted / indifferent man ‘the man similar/loyal/unknown/odious/devoted/indifferent to his boss’

(Van Riemsdijk 2007, p. 277)

Further, appositive DPs to obliquely case-marked DPs (e.g. genitive) show up in the dative, as is illustrated in (8).

(8) Sie war im Besitz zweier Kleidungsstücke der Ermordeten, she was in possession two.GEN pieces of clothing the.GEN murdered woman einem Persianermantel und einem roten Kimono. a.DAT fur coat and a.DAT red kimono ‘She owned two pieces of clothing of the murdered woman, a fur coat and a red kimono.’

(Van Riemsdijk 2007, p. 277)

Accusative (and other cases) cannot serve as the default in appositives to inherently case-marked DPs as in (9). The fact that accusative never shows up on the appositive DP indicates that accusative can never be considered the unmarked case.

(9) Wir gedenken seiner, diesem / *diesen alten Sack. we commemorate him.GEN this.DAT / this.ACC old crock ‘We remember him, this old crock.’
In non-oblique contexts, however, e.g. in structural case positions, dative on appositive DPs is out as in shown in (10).

(10) Ich besuchte dann Herrn Müller, *unserem / unseren Vertreter in
I visited then Mr.ACC Müller *our.DAT / our.ACC representative in
Pforzheim.
‘I then visited Mr. Müller, our representative in Pforzheim.’
(Van Riemsdijk 2007, p. 278)

In prenominal periphrastic possessive constructions (Koß 1983, Barbour and Stevenson 1990, Scott 2011) in German the prenominal possessive genitive is replaced by a prenominal dative plus possessive pronoun. Van Riemsdijk (1983, 2007) analyzes the dative in (11) as the remaining case when the genitive is ‘absorbed’ by the possessive pronoun.

(11) a. dem Mann sein Vater
the.DAT man his father

b. des Mannes Vater
the.GEN man father

c. *des Mannes sein Vater
the.GEN man his father

d. *dem Mann Vater
the.DAT man father
‘the man’s father’
(Van Riemsdijk 2007, p. 278)

Van Riemsdijk’s arguments for dative as the unmarked case in oblique domains do not show that dative is necessarily the unmarked case in the prepositional domain. However, we present this data as support for the idea of dative not being a lexical or inherent case in domains other than the verbal one. Now we add arguments for dative as the unmarked case in the prepositional domain. There are prepositions that weaken their inherent or lexical case assigning conditions without a semantic shift. Some prepositions that assign genitive also occur with a dative complement but never with accusative or nominative complements. For example, in PPs headed by wegen genitive makes way for dative and not for accusative. Consider the PPs in (12).
the train fell due to a.Gen severe weather.Gen out

b. Der Zug fiel [\(_{PP}\) wegen einem / *einen Unwetter] aus.  
the train fell due to a.Dat / *a.Acc severe weather out

‘The train was canceled due to severe weather.’

This phenomenon is not only observed on individual registers, styles, stages, etc. of German but it cuts across them. We actually find PPs taking as a complement a conjunction of two differently case-marked DPs, namely one with expected genitive or accusative and one with ‘unexpected’ dative. We take this to show that dative is not just another lexically or inherently triggered variant of genitive but must be the unmarked case. Consider the examples in (13) with PPs headed by wegen and a conjunct complement. The first conjunct DP surfaces with genitive case, which is standardly predicted, however the second conjunct DP surfaces with dative case. The phenomenon is commonly attested in internet texts from the SdeWaC corpus\(^3\), e.g. (13a), but also in texts from the European Language Newspaper Text Corpus\(^4\), e.g. (13b), and also in texts from poetry and fiction in the Gutenberg Corpus\(^5\), e.g. (13c). This phenomenon is also attested for spatial prepositions such as \textit{innerhalb} (‘inside’) as is illustrated in (13d).

I have me.Dat this memory card due to the.Gen memory space and the.Dat cheap price bought

‘I bought this memory card because of its memory space and its low price.’

in the State Duma become are

‘On Wednesday, the Russian president Boris Yeltsin conferred with the four ministers who became, due to the war in Chechnya and the hostage crisis in Budyonovsk, the target of vehement criticism in the State Duma.’

\(^3\)Cf. Faaß and Eckart (2013)
\(^4\)URL of European Language Newspaper Text Corpus at the Linguistic Data Consortium: http://www.ldc.upenn.edu/Catalog/catalogEntry.jsp?catalogId=LDC95T11 (July 4, 2013)
\(^5\)URL of Project Gutenberg: http://www.gutenberg.org/ (July 4, 2013)

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All of the examples in (13) are unacceptable with accusative instead of dative, again showing that accusative cannot function as the unmarked case. Note that this ‘substitutional’ interplay of genitive and dative is not found in other genitive contexts such as for example genitives indicating possession. Consider the example in (14) where the second conjunct of the apposition cannot surface as dative but necessarily exhibits genitive.

(14) die Autos der Lehrenden und der / *den Studierenden the cars the.GEN teachers and the.GEN / *the.DAT students ‘the cars of the teachers and of the students’

In newspaper corpora, we also find dative in the above described coordination context where accusative is expected as is given in (15) for durch (‘through’), which is used in a non-spatial context here.

(15) Statt den Arbeitern die — PP durch die galoppierende Inflation instead the workers the through the.ACC rampant inflation und dem Reallohnverlust ] gerechtfertigte — Forderung nach 100- oder and the.DAT real wage loss justified demand for 100- oder 200-prozentiger Lohnerhöhung zu gewähren und damit noch vor dem 200 per cent wage rise to grant and thereby yet before the
Amtswechsel die Inflation anzuheizen, rief Daniel Ortega zur change of office the inflation to boost called Daniel Ortega for-the Mäßigung auf. moderation on ‘Instead of granting the workers a wage rise of 100 or 200 per cent, which is justified by rampant inflation and real wage loss, and thereby boosting inflation before change of office, Daniel Ortega called for moderation.’

Further, we find instances of dative appositives to accusative case-marked complements of prepositions. A corpus example is given in (16).

(16) Ägypten spielte mit dem Gedanken, einen Kanal vom Mittelmeer Egypt played with the thought a canal from.the Mediterranean über 70 Kilometer bis [PP in die Qattara-Depression], [DP einer unter over 70 kilometers up in the.acc Qattara Depression a.DAT under dem Spiegel des Mittelmeers gelegene riesige Wüstenniederung], zu the level of the Mediterranean located huge desert depression to sprengen. blast ‘Egypt was thinking about blasting a canal over 70 kilometers from the Mediterranean up to the Qattara Depression, a huge desert depression that is located under the level of the Mediterranean.’

The examples above indicate that dative in fact can be considered to be the unmarked case the prepositional domain

3 Background assumptions

Having argued for dative as the unmarked case in the prepositional domain in the previous section, we want to address now the basic theoretical assumptions that underlie this work.

3.1 Prepositional roots

In line with Marantz (2001, 2007), Arad (2003), Embick and Noyer (2007), Embick and Marantz (2008), and others, we take the view that word formation is not part of the lexicon but that a sole syntactic engine is capable to from words as syntactic objects. A word-syntactic account in the spirit of Distributed Morphology (Halle and Marantz
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1993, and others) takes acategorical roots as the fundamental morphological elements that underlie words. These acategorical roots, which are not assumed to comprise syntactically active features, combine with category-defining functional heads. This is illustrated for the noun *cat* in (17)a. We extend this idea to the prepositional domain as in (17)b for the preposition *in*, for instance.

(17)  
\[
\begin{align*}
\text{(17) a. } & \quad n \quad \text{b. } \quad p \\
& \quad \sqrt{\text{cat}} \quad n \\
& \quad \sqrt{\text{in}} \quad p
\end{align*}
\]

The data in (18) where the root \(\sqrt{\text{aus}}\) can appear in different syntactic contexts realizing different parts of speech corroborates this idea. For example in (18b) the root \(\sqrt{\text{aus}}\) surfaces as a noun meaning ‘the end’ or in (18c) it surfaces as a verb meaning ‘to utter’. The semantic diversity of these instances of \(\sqrt{\text{aus}}\) makes a syntactic relation between them, e.g. derivation, unlikely. It rather seems to be the case that one underlying root \(\sqrt{\text{aus}}\) is put in a verb particle, nominal, verbal, or adjectival context in the examples below (see Embick and Marantz 2008 for an account of the idiosyncratic interpretation that roots may get in certain contexts).

(18)  
\[
\begin{align*}
\text{(18) a. } & \quad \text{Peter schlief aus. } (\sqrt{\text{aus}} \text{ as verb particle}) \\
& \quad \text{Peter slept aus} \\
& \quad \text{‘Peter slept long.’} \\
\text{b. } & \quad \text{Diese Niederlage ist das Aus für den Verein. } (\sqrt{\text{aus}} \text{ as noun}) \\
& \quad \text{this defeat is the aus for the club} \\
& \quad \text{‘This defeat is the end for the club.’} \\
\text{c. } & \quad \text{Peter äußerte einen Wunsch. } (\sqrt{\text{aus}} \text{ as verb}) \\
& \quad \text{Peter aus a wish} \\
& \quad \text{‘Peter uttered a wish.’} \\
\text{d. } & \quad \text{Das Feuer ist aus. } (\sqrt{\text{aus}} \text{ as adjectival predicate}) \\
& \quad \text{the fire is aus} \\
& \quad \text{‘The fire is dead.’}
\end{align*}
\]

Further examples of ‘prepositional’ roots surfacing as verbs in German are *erinnern* (\(\sqrt{\text{in}}, \text{‘to remember’}\)), *fördern* (\(\sqrt{\text{vor}}, \text{‘to promote’}\)), *hindern* (\(\sqrt{\text{hinter}}, \text{‘to hinder’}\)). Although the combinatorial power of ‘prepositional’ roots seems to be quite restricted, we take the fact that some of them can occur in different syntactic context as support for the approach adopted here.

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3.2 Syntactic decomposition of P

Throughout the paper, we assume a syntactic decomposition of prepositions. In line with most authors in the literature on spatial PPs (e.g. Koopman 2000, Den Dikken 2003, Gehrke 2008, Biskup 2009, Noonan 2010, Svenonius 2010, Ramchand 2012, and others), we assume that the dichotomy of locative and directional semantics of prepositions is syntactically represented by means of distinct prepositional heads. We identify two such heads, one associated with locative semantics and one associated with directional or generalized path semantics. We label those heads P₁ and P₂ respectively.⁶

3.3 The Figure/Ground relation

The Figure/Ground relation is a notion that originated in cognitive linguistics and goes back to Talmy (1975) and subsequent work (e.g. Talmy 2000). The Figure/Ground relation characterizes a particular configuration of two entities in space, such that the location of one entity (denoted by the Figure DP) can be determined with respect to the location of another entity (denoted by the Ground DP). Talmy (2000) defines the Figure and the Ground as in (19a) and (19b) respectively.

(19) a. The **Figure** is a moving or conceptually movable entity whose site, path, or orientation is conceived as a variable the particular value of which is the relevant issue.

   b. The **Ground** is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure’s site, path, or orientation is characterized.

As PPs are often used to describe such spatial configurations, the Figure/Ground relation has become an important notion in the discussion of spatial PPs, see e.g. Svenonius (2003). An example of a Figure/Ground relation from the prepositional domain is

⁶Some authors assume more syntactic projections residing in the prepositional domain. For example, Svenonius (2010) assumes a projection labeled KP (LocationP in Ramchand’s 2012 implementation) the head of which is supposed to host a function that maps entities to the space they occupy in space, i.e. the eigenspace function (Wunderlich 1991). However, for the time being, we do not take these projections into account as we do not consider them relevant for the determination of case in the prepositional domain.
given in (20). As mentioned in the introduction, the Figure/Ground relation in spatial prepositions was taken to correspond to the external/internal argument relation in the verbal domain respectively.

(20) There is [a dog]_{FIGURE} in [the garden]_{GROUND}.

4 Morphological case theory

4.1 In a nutshell

Since Chomsky (1981), morphological case has been generally considered to be the spell-out of abstract Case, the latter being associated with the syntactic licensing of DPs (see, e.g. the function of the Case Filter in the Government and Binding framework, e.g. Haegeman 1994). It has frequently been shown, however, that the relation between abstract and morphological C/case is not a one to one relationship, such that, for example, situations arise in which a DP has morphological case, but not abstract Case (e.g. Marantz 1991). Such mismatches led some researchers to abandon abstract Case altogether, retaining only morphological case, and thereby completely dissociating case from nominal licensing (Marantz 1991, Haider 2000, a.o.). A direct consequence of this is that (structural) case is no longer assigned in the syntax, but is considered a purely morphological category. Since this paper is set in the framework of Distributed Morphology (Halle and Marantz 1993), where the morphological component is situated on the PF-branch of the derivation (cf. Embick and Noyer 2007, Embick and Marantz 2008, Harley 2012, a.o.), we are led to assume that this is where case is calculated and assigned, see (21).

(21)

Syntactic derivation

Spell-Out

morphological case

PF

LF

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The post-syntactic case computation is locally restricted to case domains, which are
often taken to correspond to syntactic phasehood (cf. Wood and Sigurðsson 2014, Pat-
teroff and Campanini 2014). In the verbal domain, the minimal phase that contains a
DP is, arguably, VoiceP (i.e. vP in (1); see Sigurðsson 2012 or Schäfer 2012 for a de-
pendent case approach to the verbal domain that treats VoiceP as a case domain). In
view of the parallelism hypothesis discussed in Section 1, then, it is reasonable to as-
sume that Svenonius’ (2003) pP in (1) functions as a case domain in the prepositional
domain.\footnote{We will return to this issue later in this section.} The difference between structural and inherent/lexical case is implemented
as follows in the morphological case theory we adopt: inherent case (which is associ-
ated with a syntactic head or feature; see McIntyre 2006, Sigurðsson 2006) and lexical
case (which is associated with a certain lexical element; see Woolford 2006 for a dis-
cussion of the differences between inherent and lexical case) are assigned in the syntax
already, and therefore do not enter the post-syntactic case computation. It is thus only
the structural cases that are determined at PF. Marantz (1991) proposes that two such
structural cases exist: unmarked and dependent case. With respect to the actual cal-
culation of structural case, we follow McFadden (2004) in assuming that dependent
case is assigned to a DP if there is a c-commanding DP within the same case domain
which is not specified for lexical or inherent case. In order to illustrate the mechanism
of morphological case assignment, consider the case distributions in the pair in (22),
an example from the causative/inchoative alternation.

\begin{align*}
(22) & \quad \text{a. Der } \text{Krug \ zerbrach.} \\
& \quad \text{the.NOM jar \ broke} \\
& \quad \text{b. Peter \ zerbrach \ den \ Krug.} \\
& \quad \text{Peter.NOM broke \ the.ACC jar}
\end{align*}

If there is only one DP eligible for case in a case domain it receives unmarked case
(nominative) post-syntactically. In the inchoative sentence in (22a) the internal argu-
ment of the verb is the only DP in the case domain. It thus receives unmarked nomi-
native. The corresponding VP is sketched in (23).
If there is a second DP in the case domain such as the external argument in (22b), one of the two arguments receives dependent case and the other one unmarked case. In nominative-accusative languages, such as German, accusative is the dependent case and nominative is the unmarked case. The lower, c-commanded DP in the structure (the internal argument) receives dependent accusative and the higher, c-commanding DP (the external argument) receives unmarked nominative. We depict the corresponding VoiceP in (24).

Mcfadden (2004) discusses an example from the active/passive alternation including an instance of inherent case, see (25).

(25) a. Ulrike. NOM gave the. DAT Sepp a. ACC Tyrolean-hat
    ‘Ulrike gave Sepp a Tyrolean hat.’

b. Dem. DAT Sepp is a. NOM Tyrolean-hat given become

\(^8\)See Alexiadou et al. 2006, to appear for the claim that the causative alternation is a Voice-alternation.
‘Sepp was given a Tyrolean hat.’

(McFadden 2004, p. 30)

In both (25a) and (25b), the DP denoting Sepp bears inherent dative. It is thus excluded from the post-syntactic calculation of structural case. In the active sentence in (25a), the lower DP (the internal argument) receives dependent accusative whereas the higher DP (the external argument) receives unmarked nominative. By contrast, in the passive sentence in (25b), the internal argument DP is the only DP eligible for post-syntactic case and thus receives unmarked nominative.

The fact that inherent or lexical cases do not interfere with the determination of the structural ones is captured in the case realization disjunctive hierarchy given in (26), see, for instance, Marantz (1991) and Bobaljik (2008). According to (26), inherent and lexical cases take precedence over dependent case. Only if neither inherent/lexical or dependent case is assigned does a DP surface with unmarked case.

\[(26) \quad \text{inherent case} < \text{dependent case} < \text{unmarked case}\]

In the German verbal domain the case types in (26) pattern with the morphological case realizations as in Table 2. Note that there might be more inherent cases next to dative.

<table>
<thead>
<tr>
<th>verbal domain</th>
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</thead>
<tbody>
<tr>
<td>inherent case</td>
</tr>
<tr>
<td>depended case</td>
</tr>
<tr>
<td>unmarked case</td>
</tr>
</tbody>
</table>

Table 2: Case distribution in German verbal domain

If we assume that the prepositional domain constitutes a case domain (as seems to be the default assumption under the parallelism hypothesis), the following question arises: how can the different case types be mapped on the morphological cases that surface in the prepositional domain?
4.2 Towards a morphological case approach in P

As discussed previously, a three-way distinction of case (unmarked, dependent, and inherent) is at our disposal for calculating case. This three-way distinction meets two morphological cases in the prepositional domain: dative and accusative. Table 3 lists several hypothetical case distributions (I-VII) in the German prepositional domain.

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
</tr>
</thead>
<tbody>
<tr>
<td>inherent case</td>
<td>acc, dat</td>
<td>dat</td>
<td>acc</td>
<td>...</td>
<td>...</td>
<td>dat</td>
</tr>
<tr>
<td>dependent case</td>
<td>...</td>
<td>acc</td>
<td>dat</td>
<td>dat</td>
<td>acc</td>
<td>...</td>
</tr>
<tr>
<td>unmarked case</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>acc</td>
<td>dat</td>
<td>acc</td>
</tr>
</tbody>
</table>

Table 3: Hypothetical case distributions in German prepositional domain

Recall that other cases than just accusative and dative can surface in the prepositional domain, e.g. genitive. These cases lie outside the scope of this paper and will therefore be ignored. This is indicated by the dots in Table 3. Table 3 also does not represent all logically possible combinations. For example, it excludes the possibility that both dative and accusative are dependent cases. This possibility is ruled out because it would require (at least) three DPs eligible for structural case within the prepositional case domain. As there is no evidence for more than two DPs within spatial PPs, this potential configuration cannot arise. A further possibility we exclude from the very beginning is to treat dative and accusative both as unmarked cases. As this possibility implies that the very same case domain has two unmarked cases, a morphological case approach could not correctly predict the correct case form but additional (theory-external) means would be required. Finally, there is always the possibility that a certain case fulfills more than one function, e.g. dative could be both the default and the dependent case. We discuss this potential syncretism later in this section.

Further, we will assume that, if considered to be inherent cases, dative is associated with the functional head \( P_1 \) and accusative with the functional head \( P_2 \) (cf. Section 3.2). The opposite, i.e. associating dative with \( P_2 \) and accusative with \( P_1 \), would run counter to the observation from the alternating prepositions that accusative is related to path or directional semantics. Besides, even though we have evidence that dative is

\[ ^9 \text{Note that we exclude domain-independent default case and lexical case here.} \]
the unmarked case in the prepositional domain in German (see Section 2) we also take into account configurations that do not treat dative as the unmarked case (I, II, III, IV, and VI), cf. Table 3. In doing so, we are able to provide independent theory-internal evidence for the view that dative is the unmarked case in the prepositional domain by showing that all other assumptions are incompatible with the data.

The first question that we want to address concerning the hypothetical case distributions given in Table 3 is whether dative could be an inherent case in the prepositional domain. This corresponds to the Configurations I, II, and VI. In Configuration I, for instance, dative case is associated with a locative functional head $P_1$ and accusative case with a directional functional head $P_2$. This predicts that if $P_1$ is present the Ground DP surfaces with dative whereas if $P_2$ is present it surfaces with accusative. By implication, this means that if $P_2$ is present you cannot have dative, and if $P_1$ is present you cannot have accusative. The problem, however, is that it is generally assumed that in directional PPs, $P_1$ and $P_2$ are both projected because the directional version of an alternating preposition as in (2b) is considered to be derived from the locative version. Under standard assumptions, e.g. that the complement of the preposition is always base-generated in the same position, then, this would lead to a case conflict, as $P_1$ assigns dative case and $P_2$ accusative case to the same element. Unless one adopts a case theory where multiple case assignment is possible, with the latest assigned case overwriting all others, we can reject the idea that dative is an inherent case in the prepositional domain (at least for spatial prepositions). Eliminating Configurations I, II, and VI in that way leaves us with Configurations III, IV, V, and VII.

We now address the question whether accusative could be the dependent case in the prepositional domain. This affects Configurations II (already eliminated) and V. For these configurations it is essential that the PP potentially hosts two DPs in order to license dependent accusative. Arguably the Figure DP is the higher DP and the Ground DP is the lower DP in the prepositional case domain (cf. Svenonius 2003, 2006, 2007). One would not expect accusative in the absence of a Figure DP. However, accusative is available even if there is no Figure DP. Consider (27) where in both directional PPs Peter cannot be interpreted as the Figure in Talmy’s sense, but the Ground DP still surfaces with accusative.
(27) a. Peter winkte in den Wald.
   Peter waved in the ACC forest
   ‘Peter waved to sb. in the forest.’

   b. Peter blickte in den Wald.
   Peter looked in the ACC forest
   ‘Peter looked into the forest.’

Furthermore, if accusative was the dependent case, we would not expect another case than accusative if a Figure DP is present. However, locative PPs with a Figure DP show dative morphology on the Ground DP, see (28), where Peter is interpreted as a Figure in Talmy’s sense.

(28) Peter stand im Wald.
    Peter stood in-the DAT forest
    ‘Peter stood in the forest.’

For that reasons we reject accusative as dependent case in the prepositional domain, thus eliminating Configuration V. The Configurations III, IV, and VII remain.

We now ask whether accusative could be the unmarked case in the prepositional domain (cf. Configurations IV and VI). These possibilities have to be excluded as well (independently from the fact that we have shown in Section 2 that accusative cannot function as a default case). The problem with IV is that unmarked accusative on the Ground would only be expected in the absence of a Figure argument (as, otherwise, the Ground should receive dependent dative). As this is clearly not the case, see (29), Configuration IV has to be rejected.

(29) Peter rannte in den Wald.
    Peter ran in the ACC forest
    ‘Peter ran into the forest.’

Let us now turn to whether dative could be considered a dependent case as in Configuration III. Consider the examples in (30) and (31).

(30) Es ist kalt im Wald.
    EXPL is cold in-the DAT forest
    ‘It is cold in the forest.’

(31) a. In Deutschland bin ich weltberühmt.
    in Germany DAT am I world-famous.
‘In Germany, I am world-famous.’


b. In der Bibel schuf Gott den Himmel und die Erde in 7 Tagen.
   in the DAT Bible created God the heaven and the earth in 7 days
   ‘In the Bible, God created heaven and earth in 7 days.’

(Maïenborn 2001, p. 227)

Arguably, there is no Figure DP contained in the locative PP in (30), except one takes the expletive as being base generated in a position within the prepositional domain, which seems unlikely as the expletive can hardly be conceptualized as a Figure in (30). The Ground DP is therefore the only DP in the prepositional case domain that is eligible for structural case and should thus receive unmarked case, i.e. accusative, not dependent dative. Similarly, in the case of PPs considered to be frame-setting modifiers such as those in (31) it is rather the entire proposition, i.e. the CP denotation, than a particular DP denotation that is considered to be the Figure. It is neither the late German entertainer Harald Juhnke, who is cited in (31a), nor is it God, heaven and/or the earth in (31b) that properly qualify as the Figure(s) of the respective spatial configurations. Thus, in neither of these examples a single Figure DP occurs and yet they show dative on the Ground DP suggesting that dative is not a dependent case.

We thus ended up with Configuration VII as the only one that seems empirically justified. VII, however, appears to have a clear disadvantage: One might expect that all prepositions conveying directional semantics take an accusative complement (because accusative assigning P₂ is supposed to be present). However, this is obviously not the case, as for example the exclusively directional preposition aus (‘out of’) takes a dative complement as is shown in (32).

(32) a. Maja rannte aus dem Wald.
   Maja ran out of the DAT forest

b. *Maja rannte aus den Wald.
   Maja ran out of the ACC forest.
   ‘Maja ran out of the forest.’

Why this issue does not cause a problem for Configuration VII will be addressed in Section 5.2. There we will argue that the root √aus is inherently specified for directionality and thus does not need accusative assigning P₂ in its derivation.
The above discussion has clearly shown the following thing. The case on the Ground DP is independent from the presence or absence of a Figure DP. Recall that independently from whether a Figure DP is present or not, accusative case will be assigned in directional contexts. Similarly, dative is assigned in locative contexts, also showing no sensitivity to whether a Figure DP is projected or not. The relevant pairs are repeated in (33) and (34):

(33) a. Peter saß im Wald.
   Peter sat in the.DAT forest
   ‘Peter sat in the forest.’

   b. Es ist kalt im Wald.
   EXPL is cold in the.DAT forest
   ‘It is cold in the forest.’

(34) a. Peter rannte in den Wald.
   Peter ran in the.ACC forest
   ‘Peter ran into the forest.’

   b. Peter winkte in den Wald.
   Peter waved in the.ACC forest
   ‘Peter waved to sb. in the forest.’

We concluded that the only acceptable configuration of the ones given in Table 3 is Configuration VII, i.e. accusative as inherent, and dative as unmarked case (the latter reflecting exactly what has been independently argued for in Section 2). Comparing the case situation in the prepositional domain to the verbal one yields the picture illustrated in Table 4.

<table>
<thead>
<tr>
<th></th>
<th>verbal domain</th>
<th>prepositional domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>inherent case</td>
<td>dative, ...</td>
<td>accusative, ...</td>
</tr>
<tr>
<td>depended case</td>
<td>accusative</td>
<td>?</td>
</tr>
<tr>
<td>unmarked case</td>
<td>nominative</td>
<td>dative</td>
</tr>
</tbody>
</table>

Table 4: Case distribution in German verbal and prepositional domain

The immediate questions that arise are whether there is a dependent case in the prepositional domain, and if not, why this difference to the verbal domain should exist. With respect to the former question, one could assume that a dependent case exists, and it is just syncretic with the unmarked dative case. With respect to the latter question,
a number of potential explanations present themselves: (i) the case domain in PPs is smaller, excluding the Figure DP; (ii) the Figure is in fact a silent anaphoric element which is bound/controlled by an argument in the verbal domain and is invisible for the calculation of structural case; or (iii) the Figure is never syntactically projected in spatial PPs to begin with. These different possibilities can be summarized in the decision tree in (35).

(35)

We are now going to address these 4 options. While a definite answer to all the questions has to be left for future research, we argue that, Option 4 seems to be the most plausible candidate.

**Option 1: Dependent/unmarked case syncretism**

If there was a dependent/unmarked case syncretism of dative in German, we would expect languages where the presence of a Figure DP directly correlates either with a difference in case morphology on the Ground DP or with some overt morphological realization of little \( p \). For the latter we think of something corresponding to the Japanese causative morpheme \(-(s)ase-\) which is claimed to be the overt realization of a verbal head projecting a causer in its specifier. See (36) which is taken from Harley
As we are not aware of any language that shows such a case alternation, and it would be highly suspect if such a fragment was found over and over again in unrelated languages. This means, then, that there is no dependent case in spatial PPs. The question we are faced with now, of course, is, why this should be the case. We will first discuss Options 2 and 3, as they both retain the idea that the Figure/Ground configuration is structurally represented in (spatial) PPs, and also conform closest to the parallelism hypothesis, where the Figure DP corresponds to the external argument in the verbal domain.

**Option 2: Case-invisible anaphoric element**

The assumption that the Figure is invisible for the post-syntactic case calculation basically leads to a kind of control/binding structure with an anaphoric, yet case-invisible element or operator, say FIG, in Spec-pP that is co-referent with some DP external to pP. Of course, the case-invisibility of FIG would then be a precondition. For a clause with the direct object qualifying as the Figure, for example, this leads to a structure as sketched in (37). A DP that is base-generated in the verbal domain controls the case-invisible Figure element FIG, which itself serves as the subject of pP.

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10 Svenonius (2003) argues that Norwegian shows a case difference depending on the presence of a Figure DP. In the presence of a Figure DP av is obligatory, whereas it is optional without a Figure DP. Note however that, with respect to telicity, (ib) with av behaves on a par with (ia), namely both are atelic, whereas (ib) without av is telic. We take this as an indication that (ib) without av is, in fact, a particle rather than a preposition. (Terje Lohndahl, p.c.)

(i) a. De pakket klærne ut *(av) sekken.  
   they packed the.chlothes out of the.bag  
   ‘They packed the clothes out of the bag.’

   b. De pakket ut (av) sekken.  
   they packed out of the.bag  
   ‘They emptied the bag.’
(37) $\left[ VP_1 \left[ V' \left[ \left[ \left[ V \left[ FIG \left[ \left[ V' \left[ DP \right. \right] \right] \right] \right] \right] \right] \right] \right] \right] $

The problem with this option, however, is that the assumption of the case-invisibility of the covert element is not as innocent as it might seem. As we disfavor introducing a new empty syntactic element, we have to assume that FIG either corresponds to PRO, or to a covert operator as in Huang’s (1999) analysis of Japanese bei-passives. With respect to PRO, however, it can be shown that it is not invisible for case-calculation, cf. (38).

(38) Maja zwang Peter, PRO *der / den Wald zu verlassen.
Maja forced Peter PRO the.NOM / the.ACC forest to leave
‘Maja forced Peter to leave the forest.’

The example in (38) shows that the embedded internal argument has to surface with dependent accusative, rather than default nominative. As the embedded clause most likely constitutes a case domain, this entails that for the post-syntactic case calculation, PRO behaves just like any overt DP eligible for structural case. Even though the question of how empty syntactic elements can be relevant for PF-operations such as the calculation of case awaits future research, the fact that the empty elements known from the verbal domain behave differently from how this option would require FIG to behave lead us to reject this option.

**Option 3: Shrink case domain**

Shrinking the prepositional case domain to a level not comprising little $p$ seems a simple solution to the above generalization that the Figure DP does not influence the case properties of the Ground DP. This however raises the question of why the case domain in one syntactic domain should differ from its corresponding equivalent in another domain. Nevertheless, if one adopts this rather elusive option, the picture would look as illustrated in (39) with a big PP (i.e. $P_1P$ or $P_2P$) being the case domain.

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11We suspect that a null operator behaves similar. In the moment, however, it is not clear to us how to prove this.
(39) \[ pP \]
\[ \quad DP \quad p' \]
\[ \quad p \quad PP \]
\[ \quad P \quad \ldots \]
\[ \quad \ldots \quad DP \]

Note that under the definition of case-domain adopted in this paper, i.e. where the case domain reduces to a minimal phase, this option predicts that PP, rather than \( pP \) functions as a phase in the prepositional domain. Since this option is to save the assumption that the Figure DP is projected in Spec-\( pP \) thereby behaving on a par with the external argument in the verbal domain, it would be unexpected to see such a difference with respect to phasehood. As long as there is no positive evidence for PP being a phase, we reject this option, as well.

**Option 4: No little \( p \)**

This option is rather challenging as it clashes with several standard assumptions from the literature. First, it challenges Svenonius’ (2003) Ground Promotion analysis of verb-particle constructions. Consider Svenonius’ original Dutch example in (40) which was used to motivate the idea of Ground Promotion and, thereby, the existence of little \( p \) introducing a Figure DP. It is assumed that little \( p \) projects the Figure DP in its specifier and thus allows the lexical P to assign case to its complement, the Ground DP, compare Burzio’s Generalization (Burzio 1986) as it has been formulated for the verbal domain. In (40a) the verb takes a \( pP \) complement. The Ground DP can receive case as little \( p \) projects a Figure DP. If, however, a Figure DP is absent, as in (40b), the Ground DP cannot receive case and must therefore move out of its base-generated position to get case in the verbal domain. The Figure can then be taken up by means of a PP headed by *met* (‘with’) (parallel to *by*-phrases).

(40)  
\[ a. \quad \text{Ingrid smeert henna in haar haar.} \]
\[ \quad \text{Ingrid smears henna in her hair} \]
A morphological case approach to PPs

‘Ingrid smears henna in her hair’

b. Ingrid smeert haar haar in (met henna)
   Ingrid smears her hair in with henna
   ‘Ingrid greases her hair (with henna)’

(Van Hout 1998, Svenonius 2003)

However, it is not clear to us whether (40b) is syntactically really derived from (40a) via Ground Promotion or whether constructions such as in (40b) are independently licensed. Note that the construction in (40b), which Levin and Sells (2009) refer to as the unpredicated particle construction, is highly restricted. For example, McIntyre (2007) provides the data in (41) where it is not clear how the allegedly Ground promoted form in (41b) can be derived from an ungrammatical base as in (41a).

(41) a. *Ingrid schmiert Sonnencreme in das Kind.
   Ingrid smears sunscreen into the child.
   ‘Ingrid puts sunscreen on the child.’

b. Ingrid schmiert das Kind ein (mit Sonnencreme).
   Ingrid smears the child in with sunscreen
   ‘Ingrid puts sunscreen on the child.’

Further challenging data for Option 4 also comes from Dutch where a floating quantifier associated with the Figure argument can occur to the right of material that arguably must be part of the extended PP. In (42) the with-absolute context is supposed to prevent scrambling of the R-pronoun er outside the extended projection of P. The fact that the quantifier allemaal occurs to the right of er and must, on standard assumptions, be local to a trace of the argument it is associated with (here the Figure) suggests that the Figure binds a trace within the maximal extended projection of P.

(42) met de boeken_k [PP er_i ... [DP allemaal t_k ] ... [PP onder t_i ] ]
   with the books there all under
   ‘with all the books thereunder’

Note however that the Dutch word order is ungrammatical in German, cf. (43a). Rather, the floating quantifier occurs in a position that does not provide a basis for inferring the base position of the Figure argument, cf. (43b). Thus we assume that there might be independent reasons for the Dutch construction in (42).
(43) a. *mit den Büchern_k [PP da_i ... [DP allen t_k] ... [PP unter t_i]]
   with the books there all under
   ‘with all the books thereunder’

   b. mit den Büchern_k [DP allen t_k] [PP da_i-r-unter t_i]
   with the books all thereunder
   ‘with all the books thereunder’

A third challenge for Option 4 is provided by resultatives such as in (44), where the PP aus dem Hörsaal is predicated of the Figure DP die Studenten. For these cases one would need to assume that the Figure DP is base-generated as the subject of a structure introducing secondary predication, e.g. a small clause (Hoekstra 1988), a position over which the PP can predicate.

(44) Der Professor laberte die Studenten aus dem Hörsaal.
   the professor babbled the students out of the lecture hall
   ‘The students left the lecture hall because of the professor’s babbling.’

Even though Option 4 is rather daring we think that it might be an interesting possibility worth exploring. Let us therefore briefly provide two arguments in favor of the assumption that, in fact, the Figure DP is not syntactically represented in spatial PPs.

First, assuming the Figure to be projected in Spec-pP raises a problem for unergatives where an abstract noun that potentially qualifies as a Figure in a prepositional context incorporates into the verb. Under the assumption that pP is the complement of the verb and that the abstract Figure noun is base-generated in Spec-pP incorporation of the Figure into the verb is not predicted (Hale and Keyser 1993). Yet this is what we find, for example, with unergative denominal verbs of bodily emissions (Harley 2005) as in (45). In particular, the grammatical sentence in (45a) cannot be derived as depicted in (45b). If however, the Figure would be defined structurally as the Specifier of pP, a prepositional structure along the lines of (45b) would have to be assumed.

(45) a. Waldi pisst in die Tonne.
   Waldi pisses in the ACC ton
   ‘Waldi pisses into the ton’

   b. *[VP piss_i [VP t_i [p_p in [DP die Tonne]]]]

Second, it is a well-known property of dispositional middles as in (46), that they do not show any signs of a syntactically represented agent argument (see, e.g. Ackema

(46) Das Buch liest sich gut.  
the book reads REFLEX good  
‘The book reads well.’

In addition to the personal middle in (46), German has impersonal dispositional middles as in (47).

(47) In diesem Restaurant sitzt es sich gut.  
in this.DAT restaurant sits EXEMPLAR REFLEX good  
‘One can sit nicely in this restaurant.’

Semantically, the Figure DP of the locative PP in (47) should correspond to the agent argument of sit. Yet, this argument is not syntactically realized in dispositional middles. Again, one could propose that it is the pleonastic es, which functions as the Figure, cf. (30), but this would entail the question of how the agent argument of sit can be interpreted as the Figure if it never occurs in this position. In other words, the semantic motivation for a syntactically projected Figure argument in spatial PPs would be severely weakened. Under the assumption that the Figure does not have to be base-generated syntactically in Spec-pP, but the Figure/Ground relation is computed at the LF-interface, impersonal middles would not pose any problem.

In Section 5 we illustrate how a morphological case approach would work for spatial prepositions under Option 4.\(^{12}\)

## 5 Deriving prepositions at the syntax-semantics interface

Before we begin with implementing the case approach, let us briefly point out our assumptions concerning the architecture of the syntax-semantics interface. Concerning the merger of roots we adopt the view that roots are merged in syntax and that they receive their phonological and semantic interpretations post-syntactically (Late

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\(^{12}\)Note however that the morphological case approach discussed here does not directly hinge on one of the options mentioned above. Thus we assume that it is also realizable under the Options 1, 2, and 3.
Insertion). Similar to the Vocabulary Insertion process at PF where a root or a morpheme receives phonological content (e.g. Harley 2012), our implementation is such that it allows a root or functional material to receive semantic content depending on its local context. In particular, we propose a context-sensitive LF interpretation mechanism for the ‘insertion’ of semantic material at the terminal nodes when the structure is interpreted at the LF interface. This is reminiscent of Zeller’s (2001) mechanism of mutually dependent interpretation, even though it is implemented differently. We represent context-sensitive LF interpretation analogous to Vocabulary Insertion at the PF interface, see (48).

\[(X \leftrightarrow I_1) / \{ Y \} \leftrightarrow I_2 \text{ elsewhere} \]

(48) says that the feature or the root X has the specific interpretation \(I_1\) in the context of \(Y\), and the interpretation \(I_2\) in all other contexts. We apply this mechanism to account for the notoriously ambiguous behavior of roots that can be resolved in a local syntactic context. In particular the functional head \(P_2\) and the ‘prepositional’ root \(\sqrt{\text{über}}\) can have more than one interpretation under the implementation presented here.

In the following we will derive the sub-lexical structures of the prepositions under discussion. Therefore, as mentioned earlier, we syntactically decompose the lexical preposition (big P) into \(P_1\) and \(P_2\).

5.1 The alternation

Locative dative-taking prepositions

The first structure we look at is the one of the locative version of the alternating prepositions taking a dative complement, e.g. \(\text{in (‘in’) as in (49).} \)

\[(a. \text{ im } \text{ Wald} \quad \text{in-the.DAT forest} \quad \text{‘in the forest’}) \]

\[(49) \quad (a. \text{ im } \text{ Wald} \quad \text{in-the.DAT forest} \quad \text{‘in the forest’}) \]
The root of an alternating preposition (here: √in) is prepositionalized by the prepositional head P₁. This merger forms the actual preposition which in turn takes the Ground DP as a complement forming a locative PP, i.e. P₁P. The presence of a Figure DP is irrelevant for case. Further, we assume that P₁ does not bear any case feature. For there is no case feature available in this structure, unmarked dative surfaces on the Ground DP.

As to the LF interpretation of this structure, we assume that in the context of P₁ the prepositional root √in is interpreted as a function mapping an entity to a particular region, namely the in-region. The prepositional head P₁ instantiates a region, cf. (50), forming the preposition which itself takes a DP complement that instantiates the entity.

(50) P₁ ↔ region

**Directional accusative-taking prepositions**

The next structure we look at is the directional version of the alternating prepositions, e.g. accusative-licensing in (‘into’) in (51).

(51)  a. in den Wald
in the.ACC forest
‘into the forest’

b. P₂P

    P₂

    P₁P

    [acc] P₁ DP

    P₁ √in

We assume that an alternating preposition with an accusative complement (directional) is derived from its locative counterpart. Additionally, the structure comprises a direc-
tional prepositional head, labeled $P_2$, on top of the locative PP structure. We assume that $P_2$ bears an inherent case feature triggering accusative case on an element in its c-command domain.\textsuperscript{13} Due to the accusative case feature on $P_2$ the Ground DP is inherently case-marked and thus excluded from the post-syntactic case calculation. Dative (unmarked or dependent) cannot apply in this context.

The locative $P_1P$ contributes a region specification with respect to an entity, which is provided by the DP complement. The functional head $P_2$ merging with the locative PP receives an LF interpretation as introducing a path that is a goal path with respect to the region stemming from the locative PP. This interpretation of $P_2$ is corroborated by the goal bias, which is independently motivated on cognitive grounds, for example by Lakusta (2005) or Assadollahi et al. (2006).

5.2 The exceptions of the rule

Directional accusative-taking prepositions

The next structure we look at is that of the non-alternating directional prepositions which co-occur exclusively with accusative-marked complements. An example is durch (‘through’) for which we propose the structure in (52).

\begin{itemize}
  \item[(52)]
    \begin{enumerate}
      \item a. durch den Wald
        through the.\text{ACC} forest
        ‘through the forest’
      \item b. \begin{tikzpicture}
          \node (p2) {$P_2$};
          \node (dp) [above right of=p2] {DP};
          \node (acc) [below left of=p2] {[acc]};
          \node (p2_acc) [below left of=acc] {$P_2$ \text{[acc]} \sqrt{durch}};
          \draw (p2) -- (dp);
          \draw (p2) -- (acc);
          \draw (acc) -- (p2_acc);
        \end{tikzpicture}
    \end{enumerate}
\end{itemize}

In this structure $P_2$ directly assigns inherent accusative to its nominal complement, which is then excluded from post-syntactic case calculation. Dative (unmarked or dependent) does not apply post-syntactically.

\textsuperscript{13}In this respect, we follow Sigurðsson (2006) in assuming that inherent case corresponds to a case feature on a syntactic head which is assigned to a DP within this head’s c-/m-command domain.
Note that in this structure, the prepositional head $P_2$, which bears an inherent accusative case feature, directly prepositionalizes the root (here: $\sqrt{\text{durch}}$). Evidence for this comes from selection restrictions that the prepositions impose on their complements in the context of certain verbs. In (53) an alternating preposition ($\text{in}$, ‘in’) and a directional dative-licensing preposition ($\text{aus}$, ‘out of’) on the one side and a non-alternating, accusative-licensing directional prepositions ($\text{durch}$, ‘through’) on the other, behave differently in the context of the same verbal predication.

(53) a. Peter hängte den Anzug $[\text{PP in den Schrank }]$. 
Peter hung the suit in the $\text{ACC}$ wardrobe
‘Peter hung the suit in the wardrobe.’

b. Peter hängte den Anzug $[\text{PP aus dem Schrank }]$. 
Peter hung the suit out of the $\text{DAT}$ wardrobe
‘Peter hung the suit out of the wardrobe.’

c. ? Peter hängte den Anzug $[\text{PP durch den Schrank }]$. 
Peter hung the suit through the $\text{ACC}$ wardrobe

Additionally, these two groups of prepositions also behave differently if modified by wieder (‘again’, cf. von Stechow 1996, Beck and Johnson 2004). Ramchand (2012) observes that again triggers a repetitive and a restitutive reading for alternating prepositions and directional dative-taking prepositions, unlike for directional prepositions licensing accusative exclusively where only a repetitive reading is available.

(54) a. Peter ging wieder $[\text{PP in den Wald }]$. $\rightarrow$ rep./res. 
Peter went again in the $\text{ACC}$ forest
‘Peter went into the forest again.’

b. Peter ging wieder $[\text{PP aus dem Wald }]$. $\rightarrow$ rep./res. 
Peter went again out of the $\text{DAT}$ forest
‘Peter went out of the forest again.’

c. Peter ging wieder $[\text{PP durch den Wald }]$. $\rightarrow$ rep./*res. 
Peter went again through the $\text{ACC}$ forest
‘Peter went through the forest again.’

One could imagine that $\text{durch}$ is a suppletive stem variant of the root $\sqrt{\text{in}}$. This, however, would predict for other contexts of $\text{in}$ and $\text{durch}$ that they are structurally in complementary distribution. For example, the particle verbs $\text{einbrechen}$ (‘to break in’) and $\text{durchbrechen}$ (‘to break through’) must have different syntactic structures. Since this issue requires further research, we stick to the assumption that $\text{durch}$ is not a stem variant of the root $\sqrt{\text{in}}$. 

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We take this semantic distinction as an additional indicator for different sub-lexical structures, namely that there is no region \((P_1)\) involved in the derivation of the exclusively directional prepositions licensing accusative that can be in the scope of \textit{wieder}-modification. If there was a region, this would have been accessible for \textit{wieder} in order to bring about the restitutive reading. Note that the semantic interpretation of \(P_2\) in (52) deviates from the interpretation of \(P_2\) in (51). We think that this is an instance of contextual allosemy (Marantz 2011), i.e. a case where one syntactic terminal can possibly receive more than one semantic interpretation. We propose that two cognate readings compete for interpretation of \(P_2\). In (55) we provide the context-sensitive LF interpretation of \(P_2\). This post-syntactic rule states that \(P_2\) is interpreted as a goal path in the context of \(P_1P\), i.e. a locative PP. Elsewhere, it is interpreted as simply contributing a path.

\[
\begin{align*}
P_2 & \leftrightarrow \text{goal path} / \{P_1P\} \\
& \leftrightarrow \text{path elsewhere}
\end{align*}
\]

Note that the interpretation of a path as a goal path in the context of a locative description, is independently motivated by the goal bias (Lakusta 2005, Lakusta and Landau 2005, Assadollahi et al. 2006).

**Directional dative-taking prepositions**

The next structure we look at is that of the non-alternating directional prepositions licensing dative. An example is \textit{aus} (‘out of’), the derivation of which is depicted in (56).

\[
\begin{align*}
\text{a.} & \quad \text{aus dem Wald} \\
& \quad \text{out of the DAT forest} \\
& \quad \text{‘out of the forest’}
\end{align*}
\]

\[
\begin{align*}
\text{b.} \quad & \quad P_1P \\
& \quad P_1 \quad \text{DP} \\
& \quad P_1 \quad \sqrt{\text{aus}}
\end{align*}
\]
The prepositional head \( P_1 \) serves as the prepositionalizer of the inherently directional root \( \sqrt{\text{aus}} \).

\[
\sqrt{\text{aus}} \leftrightarrow \text{source path} / \{ P_1 \} \\
\leftrightarrow ... \]

The interpretation of \( \sqrt{\text{aus}} \) as given in (57) means that locative \( P_1 \) suffices in order to form the directional preposition \( \text{aus} \). The resulting preposition takes a DP complement, the Ground, obeying the selection restrictions of \( P_1 \). Thus, we expect the same selection restrictions as with alternating prepositions. The examples in (58) corroborate this by showing that alternating prepositions, e.g. (58a), and non-alternating directional prepositions with dative, e.g. (58b), share the same selection restrictions in the same verbal context, as opposed to non-alternating directional prepositions with accusative, e.g. (58c).

\[
\begin{align*}
\text{(58)} \quad \text{a. } & \# \text{ Peter blickte [PP in den Vorhang].} \\
& \text{Peter looked in the.ACC curtain} \\
\text{b. } & \# \text{ Peter blickte [PP aus dem Vorhang].} \\
& \text{Peter looked out of the.DAT curtain} \\
\text{c. } & \text{Peter blickte [PP durch den Vorhang].} \\
& \text{Peter looked through the.ACC curtain} \\
& \text{‘Peter looked through the curtain.’}
\end{align*}
\]

As the preposition \( \text{aus} \) is necessarily directional we assume that the root \( \sqrt{\text{aus}} \) is interpreted as inherently describing a source-path from an in-region of an entity. Evidence for this comes from predicative uses of \( \text{aus} \) as in (59).

\[
\begin{align*}
\text{(59) } \text{a. } & \text{Maja ist aus dem Haus.} \\
& \text{Maja is out of the.DAT house} \\
& \text{‘Maja left the house.’} \\
\text{b. } & \text{Maja ist im Wald.} \\
& \text{Maja is in-the.DAT forest} \\
& \text{‘Maja is in the house.’}
\end{align*}
\]

While the predicative use of \( \text{aus} \) as in (59a) necessarily presuppose an earlier transition from inside to outside, other locative prepositions such as \( \text{in} \) in (59b) do not presuppose a transition in predicative use. Further evidence for \( \sqrt{\text{aus}} \) being inherently directional
(or transitional, from the inside to the outside) comes from spatial anaphora resolution for *dort* (‘there’).

(60) a. Peter rannte aus dem Wald.
    Peter ran out of the forest
    ‘Peter ran out of the forest.’

b. Dort war es kalt.
    there was it cold
    ‘It was cold there.’

The spatial anaphor *dort* in (60b) uttered sequentially after (60a) is ambiguous. It can be interpreted as referring to the region outside of the forest or, crucially, inside the forest. We take the view that co-reference with the outside region comes from resolution with the result state of the running event which is located in the outside region of the forest. Co-reference of *dort* with the inside region follows from the the fact that the *in*-region is provided inherently by the root √aus.

As for case, the structure in (56) does not comprise an inherent accusative case feature as $P_2$ is missing. As with the locative version of the alternating prepositions the presence of a Figure DP is not case-relevant. Thus the PP-internal DP receives unmarked dative.

Note that no syntactic rule prevents accusative-licensing $P_2$ from merging with a $P_1P$ headed by *aus*. However, *aus* with accusative is ungrammatical. Actually, this is predicted by our system. Recall that $P_2$ is claimed to receive goal semantics in the context of $P_1P$. The root √aus however is inherently specified for source semantics. As a consequence the interpretation crashes at LF due to contradictory semantic specifications.\(^{15}\)

**Locative dative-taking preposition *bei* without directional counterpart**

The only alleged locative preposition that refrains from the alternation is *bei* (‘at’). Used as a genuine locative preposition *bei* should in principle alternate. This is attested in some German dialects, even though it is highly marked in Standard German, see (61).

\(^{15}\)The same constraint holds for *von* (‘from’), however not for *zu* and *nach* (both ‘to’). We assume that these two prepositions are not genuinely spatial but coerced to a spatial reading, cf. discussion on *bei*, which behaves similarly. If that is the case then the alternation is not predicted as it is restricted to the spatial prepositional domain.
(61) Die Kinder sind bei Tante Else gegangen.
   The kids are at aunt ACC Else gone
   ‘The kids went to aunt Else.’

(Duden 4, p. 388)

However, there is indication that bei (and also zu and nach, both ‘to’) is not a genuine spatial preposition but that it is coerced to a spatial interpretation. We take the data in (62) as indicative to assume that bei is not genuinely spatial. While all spatial prepositions allow for the formation of pronominal prepositional forms with da-, bei is odd in this pattern.

(62) Peter sieht ein Haus.
   ‘Peter saw a house.’
   a. Darin wohnt Maria.
      there-in lives Maria
   b. Dahinter ist ein Garten.
      there-behind is a garden
   c. Darüber fliegt ein Vogel.
      there-above flies a bird
   d. *Dabei steht ein Baum.
      there-at stands a tree

We assume that bei is not a genuine spatial preposition and it is thus not supposed to alternate as the alternation is restricted to the spatial prepositional domain. In particular, we assume that its not P₁ or P₂ that prepositionalizes √bei but another, non-spatial prepositional head, say P₃₂₇, which is in turn not selected by P₂, see (63).

(63) a. *bei den Wald
       at the ACC forest
   b. 
      *P₂P
         
            P₂
              P₃₂₇P
        [acc]
            P₃₂₇ DP
                "den Wald"
            P₃₂₇ √bei
Dative case within \( P_{327} P \) is straightforward. \( P_{327} P \) does not contain a case feature which is why unmarked dative surfaces on the DP.

### 5.3 The case of \( \dddot{\textit{über}} \)

The spatial preposition \( \dddot{\textit{über}} \) is notoriously ambiguous in German. Consider the examples in (64) and (65).

(64) a. Der Hubschrauber flog \( \dddot{\textit{über}} \) dem Tahrir-Platz.
   the helicopter flew above the.DAT Tahrir Square
   ‘The helicopter flew within the region above the Tahrir Square.’

b. Der Hubschrauber flog \( \dddot{\textit{über}} \) den Tahrir-Platz (um von dort Bilder zu machen).
   the helicopter flew above the.ACC Tahrir Square (for from there pictures to make)
   ‘The helicopter flew into the region above the Tahrir Square (in order to make pictures from there).’

The usage of \( \dddot{\textit{über}} \) in (64) corresponds to the alternation pattern: a stative interpretation is available with a dative complement (64a) whereas a directional (goal) interpretation is available with an accusative complement (64b). In this usage \( \dddot{\textit{über}} \) seems to translate best into English as ‘above’. We thus refer to this reading of \( \dddot{\textit{über}} \) as the above-reading. There is however another spatial reading of \( \dddot{\textit{über}} \), which Zwarts (2006) and Van Riemsdijk (2007) refer to as the route reading of \( \dddot{\textit{über}} \). Consider the examples in (65).

(65) a. Die Demonstranten marschierten \( \dddot{\textit{über}} \) den Tahrir-Platz.
   the protesters marched across the.ACC Tahrir Square
   ‘The protesters marched across the Tahrir Square.’

b. Der Hubschrauber flog \( \dddot{\textit{über}} \) den Tahrir-Platz (um auf die andere Seite zu gelangen).
   the helicopter flew over the.ACC Tahrir Square (for on the other side to reach)
   ‘The helicopter flew over the Tahrir Square (in order to reach the other side).’

In (65), \( \dddot{\textit{über}} \) best translates into English as ‘over’ or ‘across’, which is why we refer to this reading as the over-reading of \( \dddot{\textit{über}} \). In this reading \( \dddot{\textit{über}} \) exclusively takes an accusative complement. It does not alternate and it thus patterns with \( \dddot{\textit{durch}} \) (‘through’).
The two readings of über are distinct in the following respect.

The above-reading and the over-reading are distinct with respect to their inferential behavior in the context of wieder ('again'), recall the examples in (54). In the above-reading über patterns with in (i.e. the alternation pattern) as it gives rise to a repetitive and a restitutive interpretation, cf. (66a) and (54a).\(^{16}\) On the other hand, über in the over-reading patterns with durch as it only gives rise a repetitive interpretation, cf. (66b) and (54c).

\[(66)\]
\[
\begin{align*}
a. \quad & \text{Der Helikopter flog wieder [PP über dem Tahrir-Platz ].} \\
& \text{The helicopter flew again above the.Tahrir Square} \\
& \text{‘The helicopter flew again into the above region of the Tahrir Square.’} \\
& \Rightarrow \text{repetitive and restitutive interpretation}
\end{align*}
\[
b. \quad & \text{Die Demonstranten marschierten wieder [PP über den T.-Platz ].} \\
& \text{The protesters marched again over the.T. Square} \\
& \text{‘The protesters marched again over the Tahrir Square.’} \\
& \Rightarrow \text{repetitive interpretation only}
\]

Against the background of this dichotomy of über, we propose that the root √über has at least two, and possibly more, context-sensitive LF interpretations as indicated in (67). We consider this as a case of contextual allosemy (Marantz 2011), i.e. a case where one root can receive various semantic interpretations depending on its local context.

\[(67)\]
\[
\sqrt{\text{über}} \leftrightarrow \text{above-reading } / \{ P_1 \} \\
\leftrightarrow \text{over-reading } / \{ P_2 \} \\
\leftrightarrow \ldots
\]

The context-sensitive interpretation of √über gives rise to the derivations in (68) and (69) for the above-reading and the over-reading of über-PPs respectively.

\[(68)\]
\[
a. \quad \text{über dem Wald} \\
\quad \text{above the.DAT forest} \\
\quad \text{‘above the forest’} \rightarrow \text{basis for alternating pattern like in (‘in’)}
\]

\(^{16}\)Note that the example in (66a) is ambiguous between the above- and the over-reading. The restitutive interpretation is possible only in the above-reading of über.
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6 Conclusions

In this paper, we showed that the morphological case approach, which was so far employed almost exclusively for the verbal domain, can in fact be extended to the prepositional domain.

Our explanation of the distribution of dative and accusative case in German spatial PPs has the advantage of not requiring any additional specific assumptions but it follows from independent theoretically motivated principles. We argued in favor of the dative being the unmarked case for perpositions and accusative being an inherent case associated with a prepositional head, $P_2$, that contributes directional semantics. By applying a word-syntactic approach in the spirit of Distributed Morphology, we presented an morphological case implementation for the case distribution of German spatial prepositions. In particular, we successfully extended the idea of word-formation as the merge of an acategorical root with a category-feature bearing functional head.
to the prepositional domain. Thereby we are not only able to predict the correct case on the complement of the preposition but we also offered a structural account to the notoriously ambiguous preposition über (‘above’ vs. ‘over’/‘across’). In particular, we identified this ambiguity as a case of contextual allosemy of the ‘prepositional’ root √über.

However, several question came up in the course of this paper. First, is there a dependent/unmarked case syncretism of dative in the German prepositional domain? Second, is the Figure DP part of the PP? Put differently, is the cognitive Figure/Ground relation reflected by prepositional syntax, in the same way as the Agent/Patient relation is reflected by verbal syntax? And finally, related to previous question, what is the actual size of the prepositional case domain? Although we took a position with respect to each of these questions, they certainly have to await further research.

References


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