

A morphological case approach to PPs*

Boris Haselbach & Marcel Pitteroff

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Abstract

In this paper we address the case assignment properties of (spatial) prepositions in German. Applying a word-syntactic framework in the spirit of Distributed Morphology (Halle & Marantz 1993), we offer a post-syntactic approach to morphological case (Marantz 1991) in German PPs. We argue that dative is the case that is inherently assigned by the category P and that other cases are derived by regular (Path Impoverishment) or idiosyncratic morphological operations. In particular we implement the well-known dative/accusative alternation in German PPs that reflects a semantic alternation between a locative and a directional meaning. We also address those spatial prepositions that invariantly combine with a particular case like route prepositions (with accusative) and inherently directional prepositions (with dative). Our analysis turns out to be superior to lexicalist approaches such as Bierwisch (1988) in that we can model the ambiguous preposition *über* ('above', 'over', 'across') with one underlying element while in lexicalist approaches one needs to postulate two independent lexical entries.

Keywords: morphological case, Distributed Morphology, prepositions, locative-directional alternation, spatial PPs in German

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1 Introduction

The case assignment by prepositions has challenged linguistic theory ever since. In this paper we offer an approach to the case assignment of German prepositions that exploits word-syntactic principles in combination with morphological, i.e. post-syntactic case assignment.

1.1 The phenomenon

German shows a well-known case alternation on the complement to several spatial prepositions. Consider the locative preposition *in* ('in'/'into') in (1).¹

- (1) a. Hans rannte im Wald.
 Hans ran in-the.DAT woods
 'Hans ran within the woods.'
- b. Hans rannte in den Wald.
 Hans ran in the.ACC woods
 'Hans ran into the woods.'

If the complement of a locative preposition is marked with dative case the PP receives a stative interpretation (1a) while it receives a dynamic interpretation if the complement of the preposition is marked with accusative (1b). In (1b) the location that is expressed by the PP in (1a) is interpreted as a goal. The locative prepositions that participate in this dative/accusative alternation (sometimes referred to as the locative/directional alternation) are *an* ('at'/'on'), *auf* ('on'), *hinter* ('behind'), *neben* ('next to'), *in* ('in'), *über* ('above'), *unter* ('under'), *vor* ('in front of'), and *zwischen* ('in between').

Next to this regular pattern there are basically two groups of prepositions that seem exceptional. On the one hand there are the so-called route prepositions *durch* ('through'), *über* ('over'/'across'), and *um* ('around') that exclusively co-occur with an

¹Note first that we ignore here fused forms (i.e. *im* = *in dem* 'in the.DAT') that some prepositions show in combination with a dative determiner. We basically treat the fused forms on par with their non-fused forms. The interpretative differences that may arise with respect to the fused/non-fused distinction are not relevant for the case assigning properties of the preposition.

Den Dikken relates dative on the embedded DP to the presence of the functional head Place in the structure. This means that the derivation of an alternating preposition in the stative interpretation must involve Place because it takes a dative complement (4a). The derivation of an alternating preposition in the dynamic version, however, must not involve Place because it takes an accusative rather than a dative complement (5). Note that den Dikken follows common approaches to case assignment in assuming that, once assigned, a particular case value cannot be overwritten.

(5) [C(Path) [Path [P_{dir} [P_{loc} DP]]]]

By contrast, the derivation of an inherently directional preposition like *aus* that takes a dative complement has to involve Place (4b). Zwarts (2006) and Caha (2010) point out that it is not clear what motivates the absence of Place in (1b) and its presence in (3), independently from case assignment. In particular, there are no syntactic or semantic differences between the prepositions in (1b) and (3) that would account for the assumed distribution of Place.

Caha (2010) proposes a peeling approach to the dative/accusative alternation in German (locative/directional alternation in his terminology). First, building on Bayer et al. (2001), he proposes that nominal arguments come with a hierarchically layered shell structure for case features on top of the DP level. In particular Caha assumes that accusative corresponds to the functional layer F above DP and that dative corresponds to the functional layer K above FP. This means that accusative is structurally ‘contained’ within dative.³ See (6).

(6) a. Accusative: [F [DP]]
 b. Dative: [K [F [DP]]]

(Caha 2010: 205)

Second, when a DP moves it can strand these case features which then leads to a change of one case into another under movement. For a stative locative preposition with dative as in (1a), Caha proposes the following derivation. The prepositional head

³Note that this is in principle comparable to the feature decomposition of case that we will assume, cf. section 2.4. One crucial difference is, however, that we do not attribute (structural) case to a syntactic projections but to morphology.

P-loc takes KP as its complement (7a). The aspectual prepositional head Asp-loc takes P-locP as its complement and attracts KP from within P-locP to its specifier (7b). Finally, P-locP undergoes remnant movement to Spec-XP in order to derive the correct linear order (7c).

- (7) a. [P-loc KP]
 b. [KP [Asp-loc [P-loc KP]]]
 c. [_{XP} [P-loc KP] [KP [Asp-loc P-locP]]]

(cf. Caha 2010: 186, 208)

For a dynamic locative preposition with accusative case as in (1b), Caha proposes that the functional head Path merges with the XP from (7c) and sub-extracts FP from within KP to its specifier (8a). In this way the dative layer is peeled off leading to accusative case on the DP. Finally, XP undergoes remnant movement to Spec-YP in order to precede the DP (8b).

- (8) a. [FP [Path [_{XP} [P-loc KP] ... [[K FP] Asp-loc ...]]]]
 b. [_{YP} [_{XP} [P-loc KP] ... [[K FP] Asp-loc ...]] [FP [Path XP]]]

(cf. Caha 2010: 187, 208)

In order to block accusative with *aus* Caha assumes that *aus* lexicalizes Path and that the Doubly Filled Nothing principle (Starke 2004), which states that no projection can have both its head-terminal and its specifier present at the same time, blocks the derivation of an accusative nominal. That is, peeling of FP out of a downstairs KP into the specifier of Path does not apply. Caha proposes that *durch* ('through'), which does not alternate but exclusively takes an accusative complement, can be accounted for by means of its lexical specification.

One issue with Caha's case peeling theory in general is his claim that case alternations are tied to movement. In other words, the theory predicts that if the case marking on an argument changes from, say, accusative to nominative, as is the case for example in verbal passives, movement of the argument must have taken place. This prediction, however, is wrong for German. It is a well-known fact, at least since den Besten (1982), that, in German, subjects in passives can remain in their VP-internal base-position (see also Haider 1993, 2010; Wurmbrand 2006 shows that the subject does not move

covertly). The shift from accusative to nominative in these cases is thus unexpected under Caha's theory, being contingent on movement as it is.

Even though implemented differently, the approaches by den Dikken (2003) and Caha (2010) are akin in that they both relate case (directly or indirectly) to functional heads in the extended projections of the prepositional heads. Dative is linked to a functional head above the locative prepositional head (i.e. "Place" in Den Dikken's system and "Asp-loc" in Caha's system) and accusative is linked to a functional head in the directional domain (i.e. "Path" in both systems).

Arsenijević & Gehrke (2009) propose another syntactic account to the case distribution in the domain of spatial prepositions. They claim that the verbal case domain can extend to a PP under certain conditions. In particular they suggest that if a PP is in complement position to a verb, the case domain of the verb is extended and accusative, if available in the verbal domain for the direct object, is then also available in the PP. This approach seems to run into serious problems in cases where accusative is not available contextually, such as in passives (9a), unaccusatives (9b), or nominal constructions (9c). In these contexts, accusative is not available in the verbal domain, if present at all, and thus it is not clear where accusative in the PP comes from. If dative is the default prepositional case applied in the absence of accusative, these cases are expected to surface with dative on the DP, contrary to fact.

- (9) a. Der Schatz wurde in den Wald gebracht.
 the treasure was in the.ACC woods brought
 'The treasure was brought into the woods.'
- b. Trümmerteile fielen in den Wald.
 debris fell in the.ACC woods
 'Debris fell into the woods.'
- c. der Weg in den Wald
 the way in the.ACC woods
 'the path into the woods'

1.3 The lexicalist solution?

In contrast to the syntactic approaches presented above, the lexicalist approach by Bierwisch (1988) makes the right predictions with respect to prepositional case assignment and it does not face the issues that the syntactic approaches have. Bierwisch accounts

for the case assignment properties of prepositions by means of lexical rules. Consider the lexical entries for the prepositions *in* and *an* in (10), which both follow the alternation pattern. The entries consist of a surface form, a set of morphosyntactic features in square brackets, and a semantic form part with two variables that are linked into syntax. The circumflex notation can be considered to be equal to lambda-abstracted arguments with the precise differences not being relevant here. Ignoring the body of the semantic part for the moment we can see that the case feature $[\pm\text{Obl}]$, which accounts for dative case, is tied to the internal argument, i.e. the complement of the preposition. Its value is inversely connected to the value of the morphosyntactic directionality feature $[\pm\text{Dir}]$ via the variable α that ranges over the values '+' and '-'. If the morphosyntactic Dir feature has a positive value, the Obl case feature has a negative value and the internal argument will surface with accusative case. If Dir is specified as negative, this leads to a positive Obl case feature and thus to dative case. In addition, the variable α conditions the occurrence of the function FIN in the body of the semantic form. If α is positive FIN contributes the directional (goal) semantics, while, if α is negative, FIN is absent, leading to stationary semantics.

- (10) a. /in/, $[-V,-N,\alpha\text{Dir}]$, $\hat{y}_{[-\alpha\text{Obl}]}$ \hat{x} [(αFIN) [LOC x] \subset LOC y]
 b. /an/, $[-V,-N,\alpha\text{Dir}]$, $\hat{y}_{[-\alpha\text{Obl}]}$ \hat{x} [(αFIN) [LOC x] AT LOC y]
 (Bierwisch 1988: 37)

For prepositions like *aus* that are exclusively directional and that only take dative complements Bierwisch provides a lexical entry as in (11). Here both the morphosyntactic feature Dir and the Obl case feature are specified positively in the lexicon. Additionally in the semantic form the function INIT provides directional (source) semantics.

- (11) /aus/, $[-V,-N,+Dir]$, $\hat{y}_{[+\text{Obl}]}$ \hat{x} [INIT [LOC x] \subset LOC y]
 (Bierwisch 1988: 35)

Even though Bierwisch (1988) does not provide a lexical entry for *durch* we can assume that it is approximately as in (12). Ignoring the category features and the body of the semantic form, we expect that the value of the morphosyntactic feature Dir is set to '+' while the Obl case feature on the internal argument must be negative to account for accusative case.

(12) /durch/, [...,+Dir], $\hat{y}_{[-Obl]}$ \hat{x} ...

With respect to case assignment the lexicalist approach by Bierwisch (1988) seem to be superior to the syntactic approaches that we presented above. However, does that mean that a lexicalist approach is needed for prepositional case assignment? For frameworks that assume a lexicon but that explain morphological case for the verbal domain (post-)syntactically it is of course undesirable to have one component where verbal case is calculated (i.e. the syntax) and one component where prepositional case is determined (i.e. the lexicon). Further, word-syntactic frameworks such as Distributed Morphology (Halle & Marantz 1993) that do not assume a lexical module preceding the syntactic computation cannot incorporate Bierwisch's account but they seem to be reliant upon a syntactic approach.

In this contribution we show that a lexicon preceding the syntax is not required for prepositional case assignment but that it can in fact be stated in terms of a morphological, i.e. post-syntactic, approach to case (Marantz 1991). In fact, our approach will turn out to be superior to the one by Bierwisch (1988) with respect to the preposition *über* ('above', 'over', 'across') that is highly ambiguous in German. While Bierwisch has to assume two distinct lexical entries for *über*, we get by with only one underlying core element (cf. section 4.4).

This paper is structured as follows. In section 2 we will present the framework in which we embed our proposal. With respect to the syntactic derivation, we will discuss the relevant morphosyntactic features, functional heads, and roots. There, we will also address the morphological case approach. In section 3 we discuss the role of oblique cases in the prepositional domain. First we will argue that dative is the regular case in the prepositional domain, at least in German. Second we will briefly look at the role of genitive in German PPs. In section 4 we will present our analysis of case assignment in PPs. In particular, we will provide an analysis for the alternation pattern, for the route prepositions taking accusative complements, for German *über* ('above', 'over', 'across'), as well as for the inherently directional dative-taking prepositions. Our analysis does not suffer from the theoretical inelegancies or wrong empirical predictions of other syntactic approaches. It can also derive the situation with *über* more elegantly than Bierwisch's lexical approach. Finally we will conclude in section 5.

2 The morphosyntax of prepositions

In this section we lay out the architectural assumptions underlying our analysis. In this paper, we pursue a Late Insertion approach in the spirit of Distributed Morphology (DM; Halle & Marantz 1993, a.o.). That is, we assume that there is no lexicon preceding the syntactic component. Syntax operates on morphemes which involve morphosyntactic features drawn from UG. Vocabulary items are inserted late, i.e. after the syntactic derivation at the PF interface. We combine this with a post-syntactic approach to case assignment (Marantz 1991, McFadden 2004, a.o.), which eliminates (structural) case assignment from the syntax treating it as a purely morphological phenomenon that is not involved in syntactic licensing. That is, (structural) case is not a syntactic category but a morphological one.

2.1 Morphosyntactic features in PPs

Let us begin with the morphosyntactic category of prepositions. We basically assume that all prepositions share a universally available categorial feature P in their syntactic representation. Note that alternative categorizations of prepositions in terms of feature decomposition like Chomsky (1970), Wunderlich (1996), Hale & Keyser (1997), or others are of course compatible with our account. However for the sake of argument we simply assume a categorial feature P. What is crucial is that we can isolate prepositions from the other major 'lexical' categories N, V, and A. We also do not confine ourselves to a claim about any functional structure above P, comparable to C, T, etc. above V or to D, etc. above N. The question concerning functional structure of P does not, as far as we see it, influence the determination of the case on the complement of a preposition.

In the literature on spatial prepositions a dichotomy of PPs into (stative) locative prepositions and directional ones has become a general consensus (Jackendoff 1990, Koopman 2000, van Riemsdijk & Huijbregts 2007, Folli 2008, Gehrke 2008, Kracht 2008, Pantcheva 2008, Svenonius 2008, 2010, Abraham 2010, Caha 2010, den Dikken 2010, Noonan 2010, Roßdeutscher 2013, a.o.). Most of these authors thus assume at least two types of (functional) heads in the prepositional domain: one associated with stative spatial semantics and one associated with directional or dynamic spatial semantics. They are commonly labeled as Place and Path, respectively, but other labels are also

found. We capture this generalization by identifying two morphosyntactic features that are active in the prepositional domain: $[\pm\text{loc}(\text{ative})]$ and $[\pm\text{dir}(\text{ectional})]$. We take these features to be binary (for a discussion on binarity of features see, for example, Adger 2010).

As is common in minimalist syntax, functional heads consist of morphosyntactic feature bundles. We thus assume that the features $[\pm\text{loc}]$ and $[\pm\text{dir}]$ can be a subset of the morphosyntactic feature bundle of a prepositional head. Given these two binary features we obtain the possible specifications of prepositions in (13). In the tradition of DM we label functional categorizing heads with lower-case letters. Next to the features $[\pm\text{loc}]$ and $[\pm\text{dir}]$, the prepositional heads indicated in (13) all share the property that they contain also a categorial (privative) feature P and thus they can serve as prepositionalizers (see discussion on roots below).

(13) **Feature specification of prepositions:**

syntactic label \rightarrow	\mathbf{p}_x	\mathbf{p}_{loc}	$\mathbf{p}_{\text{loc/dir}}$	\mathbf{p}_{dir}
\downarrow feature				
locative	–	+	+	–
directional	–	–	+	+
	<i>non-spatial P</i>	<i>stative</i>	<i>dynamic</i>	<i>route P</i>
		<i>locative P</i>		
		<i>spatial P</i>		

If both the locative and the directional features have a negative value (or if both are absent from the representation) the respective prepositional head p_x counts as non-spatial. If the locative feature is positive and the directional feature negative we assume to obtain a stative locative preposition which we represent with p_{loc} .⁴ An example of a stative locative preposition is *in* in (1a). If both features are positive we obtain a dynamic locative preposition like *in* in (1b). We label these prepositions $p_{\text{loc/dir}}$. In the case where the locative feature is negative but the directional feature positive, i.e. p_{dir} , we claim to obtain route prepositions like *durch* in (2).

We can diagnose the negative (or absent) locative feature with route prepositions

⁴Note that the labels of our heads p_{loc} and p_{dir} must not be confused with the ones by den Dikken (2003).

by means of modification with *wieder* ('again', cf. von Stechow 1996, Beck & Johnson 2004). Ramchand (2012) observes that *again* triggers a repetitive and a restitutive reading in the context of dynamic locative prepositions, but in the context of route prepositions only a repetitive reading is available.

- (14) a. Hans rannte wieder in den Wald.
 Hans ran again in the.ACC woods
 'Hans ran into the woods again.'
 → *repetitive and restitutive interpretation*
- b. Hans rannte wieder durch den Wald.
 Hans ran again through the.ACC woods
 'Hans ran through the woods again.'
 → *repetitive interpretation only*

We take this semantic distinction as an indicator for the unavailability of locative semantics with route prepositions. If a positive locative feature was available in (14b) this would necessarily lead to locative semantics, which then could be targeted by *wieder* giving rise to a restitutive reading. The rationale of this is that the locative semantics provide input for the predication of a result state that *wieder* targets. Hence, we can conclude that no positive locative feature is involved in the derivation of route prepositions.

Another distinction between dynamic locative prepositions as in (15a) and route prepositions as in (15b) becomes visible with modification with a measure phrase.

- (15) a. Hans ging 50 Meter hinter das Haus.
 Hans went 50 meters behind the.ACC house
 'Hans went to a point that is 50 meters behind the house.'
- b. Hans ging 50 Meter um das Haus.
 Hans went 50 meters around the.ACC house
 'Hans went 50 meters around the house.'

Both sentences in (15) have a reading where the measure phrase *50 Meter* targets the path of movement contributed by the verbal predicate, i.e. *going 50 meters*. But while (15b) necessarily implies a movement of 50 meters, (15a) does not have such an implication. The sentence in (15a) has an additional reading where the measure phrase does not target the path of the movement but where it targets the spatial con-

figuration contributed by the stative locative preposition (for a vector space analysis of measure phrases with locative prepositions see Zwarts 1997, Zwarts & Winter 2000). In this way the sentence can also describe a situation where Hans ends up 50 meters behind the house irrespective of the length (and also of the direction) of the path that he has moved along. What is crucial is that he enters the behind-region from some non-behind-region. A comparable situation cannot be described by (15b). Here the measure phrase necessarily targets the path of movement. We thus assume that a positive locative feature is available in the derivation of dynamic locative prepositions but not in the derivation of route prepositions.

In order to account for this difference we should first point to one assumption that we make at the syntax-semantics interface. We basically assume that terminal nodes may receive varying interpretations much like they can receive various morphological realizations depending on their local context. Marantz (2011) refers to these phenomena as contextual allosemy and contextual allomorphy, respectively (see also Wood 2014). We can then explain the difference in (15) in the following way. Arguably, the PPs in both sentences contain a positive directional feature. In (15a) it occurs in the context of a positive locative feature while in (15b) the locative feature is negative. We claim that these distinct contexts, in turn, give rise to different semantic interpretations of the positive directional feature. In the case of a negative locative feature (i.e. a route preposition) we assume that the directional feature is interpreted as a protracted path which can then be identified with the (implicit) path from the verbal predication. In this way, the path from the verbal predicate is further specified by the route PP. The measure phrase *50 meters* then targets this path by way of modification. On the other side, in the case of a positive locative feature, we assume that the directional feature is interpreted differently, namely as a transition into the location specified by the locative feature. The ‘path’ specified by a dynamic locative PP is thus not a protracted path but rather a minimal path constructed by means of two points: a starting point that is outside the respective location and an end point that is within that location. In that way a positive directional feature in the context of a positive locative feature gives rise to a goal interpretation (i.e. a transition into a certain location). Note that the goal semantics in such contexts can be motivated independently on cognitive grounds by means of a bias toward a goal (Lakusta 2005, Assadollahi et al. 2006). This is ex-

actly what we observe with alternating prepositions like *in* ('in') or *hinter* ('behind'). In the dynamic locative use they convey meaning that can be paraphrased as 'into the in-/behind-region of'.

Many analyses of spatial prepositions involve a cartographic structuring of the morphosyntactic features presented above. In these accounts the directional feature is normally associated with a separate syntactic head which dominates the head that contributes the locative feature, yielding a structure as in (16), e.g. Koopman 2000, van Riemsdijk & Huijbregts 2007, Folli 2008, Gehrke 2008, Svenonius 2008, 2010, Caha 2010, den Dikken 2010, Noonan 2010, Roßdeutscher 2013; some with varying labels.

(16) [Path ... [Place ...]]

We generally accept this view on the feature decomposition, however, for the purpose of this paper, we do not need to assume that this is reflected in the syntax, i.e. we simply assume the basic structure for pPs as depicted in (17).⁵

(17)

$$\begin{array}{c}
 \text{pP} \\
 \swarrow \quad \searrow \\
 \text{p} \qquad \text{DP} \\
 \text{[P,}\pm\text{loc,}\pm\text{dir]}
 \end{array}$$

As mentioned above, our approach to prepositions is couched in the tradition of DM. One core property of DM is that the phonological exponents of syntactic terminals are inserted late into the structure, that is, after syntax and after the application of morphological rules such as case assignment. A phonological exponent, or Vocabulary item (VI), is normally equipped with a set of grammatical features that must match with the grammatical features on a syntactic terminal, which is also referred to as a morpheme. The insertion of a VI into a morpheme is guided by the Subset Principle (Halle 1997: 128) which states that the VI must match all or a subset of the grammatical features specified in the terminal morpheme. If the VI contains features that are not present in the morpheme, insertion does not take place. Where several VIs meet the conditions for insertion, the VI matching the greatest number of features specified in

⁵The p heads that we address here all share, of course, a categorial feature P and they may contain the features [±loc] and [±dir].

the morpheme is chosen.

We can illustrate the insertion of a VI with Norwegian strong adjectival inflection (Sauerland 1996). Consider the adjective *grøn* ('green') that inflects as indicated in (18). In the singular (i.e. non-plural) two forms are distinguished. The neuter form ends in *-t* while the non-neuter (i.e. feminine and masculine) form does not show an overt inflectional suffix. That is, it takes the zero-morpheme. In the plural form the inflectional suffix for all genders is *-e*. We can formalize this inflection pattern with the number feature [\pm plural] and gender feature [\pm neuter] as given in (18).

(18) **Norwegian strong adjectival inflection:**

gender \rightarrow	-neuter	+neuter
\downarrow number		
-plural	<i>grøn</i>	<i>grøn-t</i>
+plural	<i>grøn-e</i>	<i>grøn-e</i>

(adapted from Sauerland 1996: 28)

We can formulate the VIs of the inflectional suffixes in (19). The VI *-t* is specified for the category A (for adjective), non-plural, and neuter. The zero form is specified for the category A and non-plural. The VI *-e* is only specified for the category A.

(19) **VIs for Norwegian adjectival inflection:**

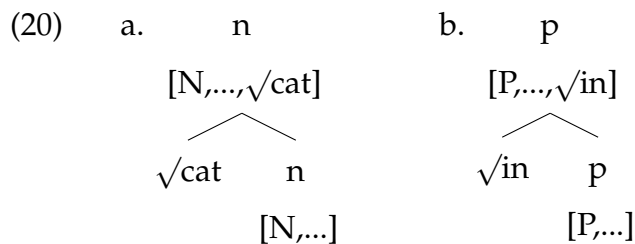
- a. *-t* \leftrightarrow [A, -plural, +neuter]
- b. \emptyset \leftrightarrow [A, -plural]
- c. *-e* \leftrightarrow [A]

(adapted from Sauerland 1996: 28)

In a morpheme with the feature specification [A, -plural, +neuter] the VIs *-t* and \emptyset compete for insertion with respect to the number feature. However, the VI *-t* wins because it is a more specific match with respect to the gender feature. In a morpheme with the feature specification [A, -plural, -neuter] or [A, -plural] the VI *-t* cannot be inserted because it is conversely specified or too specific with respect to gender. Following this line of reasoning, in morphemes with a positive plural specification the VI *-e* is inserted.

2.2 Prepositions derive from roots

In line with Marantz (2001, 2007), Arad (2003), Embick & Noyer (2007), Embick & 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 form words as syntactic objects. A word-syntactic account in the spirit of DM takes acategorical roots as the fundamental morphological elements that underlie words. An acategorical root, which we do not assume to comprise syntactically active features (Acquaviva 2009, de Belder & van Craenenbroeck 2011), combines with a category-defining functional head. This is illustrated for the noun *cat* in (20)a. We extend this idea to the prepositional domain as is illustrated for the preposition *in* in (20)b. We represent this operation by including the root in the feature set of the respective prepositional head.



Ultimately, a VI spells out the feature bundle obeying the Subset Principle (Halle 1997). An example is given in (21).

(21) *in* ↔ [P,+loc,√in]

Indication for the hypothesis that prepositions derive from underlying roots comes from the observation that those roots seem to occur also in various non-prepositional environments, with possible morphological and semantic variation. See (22) for plausible instances of the root √aus. In (22a) the root √aus enters a structure where it becomes a quantifying verb particle (Roßdeutscher 2012), in (22b) it surfaces as a noun meaning ‘the end’, in (22c) it surfaces as a verb meaning ‘to utter’, and in (22d) it functions as an adjectival (secondary) predicate. The semantic diversity of these instances of √aus makes a syntactic relation between them unlikely, e.g. via derivation. It rather seems that the examples below share one particular conceptual root (i.e. √aus) that can have several distinct morphological and semantic incarnations depending on its respective context (see Embick & Marantz 2008 for an account of the idiosyncratic in-

terpretation that roots may get in certain contexts).

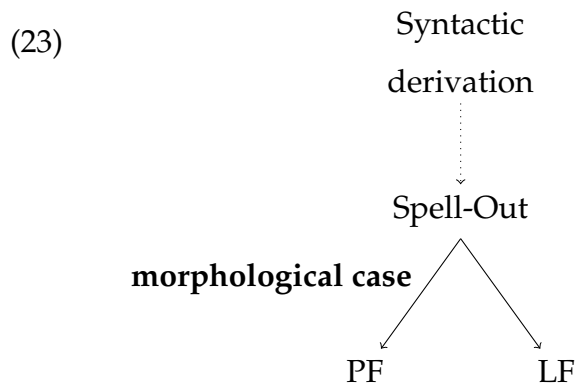
- (22) a. Hans schlief aus.
 Hans slept aus
 'Hans slept long.'
 → $\sqrt{\text{aus}}$ as a verb particle
- b. Diese Niederlage ist das Aus für Hans.
 this defeat is the aus for Hans
 'This defeat is the end for Hans.'
 → $\sqrt{\text{aus}}$ as a noun
- c. Hans äußerte einen Wunsch.
 Hans aus a wish
 'Hans uttered a wish.'
 → $\sqrt{\text{aus}}$ as a verb
- d. Hans machte das Feuer aus.
 Hans made the fire aus
 'Hans put out the fire.'
 → $\sqrt{\text{aus}}$ as an adjectival predicate

Further examples of roots that normally underlie prepositions and that can surface in other contexts are *erinnern* ($\sqrt{\text{in}}$, 'to remember'), *fördern* ($\sqrt{\text{vor}}$, 'to promote'), *hindern* ($\sqrt{\text{hinter}}$, '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 contexts as support for the approach adopted here. Note that the perspective on prepositions built from roots does not imply that, for example, a straightforward verb like **ausen* is expected. We assume that there are language specific constraints at the PF and LF interfaces that confine the realization and the interpretation of roots. Consider the following parallel from the nominal domain. The noun *ein Hund* ('a dog') derives from an underlying root, say $\sqrt{\text{hund}}$, that is integrated in some nominal context (N, singular, count, indefinite, etc.). Even though one might imagine hypothetical instances of this root in a verbal context, there is no straightforward verb in German that involves the root $\sqrt{\text{hund}}$ (though there is one in English, i.e. 'to dog somebody'). So, there is no German verb **hunden* with any possible eventive meaning related to the concept of 'dog', e.g. 'to walk a dog' or 'to chase somebody like a dog'. We claim that this is for German does not have the respective interface rules that provide content for the root $\sqrt{\text{hund}}$ in a verbal context at PF and LF. Note that complex derivations result-

ing in productive ad-hoc neologisms like *behunden* ('to equip somebody with a dog') or *enthunden* ('to deprive somebody of a dog') might exist for independent reasons. In the same way as a root like $\sqrt{\text{hund}}$ does not enter a straightforward derivation as a verb, the combinatorial power of roots like $\sqrt{\text{in}}$ is not entirely free. The question tackling the conceptual space of roots in a given language is far from being answered, yet it is independent of morphological case marking and thus we do not discuss it here further.

2.3 On morphological case

In this paper we put forth a morphological, i.e. post-syntactic approach to prepositional phrases. The original motivation for the dissociation of case assignment and argument licensing comes from the unpredictable mapping between abstract Case (i.e. nominal licensing) and morphological case. 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; Chomsky 1981, Haegeman 1994, a.o.). It has frequently been shown, however, that the relation between abstract Case and morphological 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 (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, McFadden 2004, Bobaljik 2008, Sigurðsson 2009, Schäfer 2012, a.o.). A direct consequence of this is that (structural) case is no longer assigned in the syntax, but that it is considered a purely morphological category. In a word-syntactic framework such as DM the morphological component is situated on the PF-branch of the derivation, thus post-syntactic (cf. Embick & Noyer 2007, Embick & Marantz 2008, Harley 2012, a.o.). We assume that this is where (structural) case is calculated and assigned. See (23).



Morphological case approaches, as for example put forth by McFadden (2004), generally distinguish between structural and non-structural cases. The former are assigned to DPs that compete for case in a structural configuration in certain domains while the latter are assigned to DPs in certain syntactic positions. Marantz (1991) proposes that two structural cases exist: an unmarked case and a marked case. In nominative/accusative languages unmarked case is identified with nominative. It applies as a default case if no other case applies. The marked case is accusative and it is assumed to depend on the existence of another argument in the case domain. Thus, the marked case is also referred to as the dependent case. With respect to the actual calculation of structural case, we follow McFadden (2004, 2007) 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 a non-structural case. Non-structural cases, as opposed to structural ones, are assigned to DPs not relative to the occurrence of other DPs in the respective case domain but to DPs in certain syntactic positions. Non-structural cases are also sometimes referred to as inherent cases. The specifier position of a (high) applicative head, i.e. Appl (Pylkkänen 2000), is normally assumed to be a position where a DP receives a non-structural case, i.e. dative (McFadden 2004, 2006, Sigurðsson 2006). Consider for the purpose of illustration McFadden's (2004) example in (24).

- (24)
- a. Ulrike schenkte dem Sepp einen Tirolerhut.
 Ulrike.NOM gave the.DAT Sepp a.ACC Tyrolean-hat
 'Ulrike gave Sepp a Tyrolean hat.'
- b. Dem Sepp ist ein Tirolerhut geschenkt worden.
 the.DAT Sepp is a.NOM Tyrolean-hat given become
 'Sepp was given a Tyrolean hat.'

(McFadden 2004: 30)

In both (24a) and (24b), the DP denoting Sepp is assumed to be base-generated in the specifier of an applicative head which is why it bears non-structural dative. It is thus excluded from the calculation of structural case. In the active sentence in (24a), the lower DP (the internal argument) receives dependent accusative (due to the presence of a higher DP that is eligible for structural case) whereas the higher DP (the external argument) receives unmarked nominative. By contrast, in the passive sentence in (24b), the internal argument DP is the only DP eligible for structural case and it thus receives unmarked nominative.

2.4 Feature decomposition of case

We take nominative, accusative, dative, and genitive as case categories that can be decomposed into abstract case features (Hjelmslev 1935, Jakobson 1936, Bierwisch 1967, Halle 1997, Halle & Vaux 1997, Calabrese 1998, Wunderlich 2003, Müller 2004, McFadden 2004, Alexiadou & Müller 2008, a.o.). The motivation for a rather abstract case feature system is that it allows generalizations over the distribution of various case categories (e.g. nominative/accusative vs. ergative/absolute assignment patterns) and that it can easily explain case syncretisms. In line with McFadden (2004) we assume the binary features [\pm inf(erior)], [\pm obl(ique)], and [\pm gen(itive)] to capture the German case categories nominative, accusative, dative, and genitive. These can then be decomposed as in (25).

(25) Feature decomposition of case:

case category →	nominative	accusative	dative	genitive
↓ feature				
inferior	–	+	+	+
oblique	–	–	+	+
genitive	–	–	–	+

Applying this feature decomposition, post-syntactic case assignment can be formalized as follows in order to account for the data set in (24). The assignment of non-structural case is determined as in (26) while structural case is determined as in (27).

(26) Non-structural case assignment:

Assign [+inf,+obl] to a DP in the specifier of Appl.

(adapted from McFadden 2004: 225)

(27) **Structural case assignment:**

Assign [+inf] to a DP_{*i*} if and only if

- a. there is a DP_{*j*} within the same phase, and
- b. DP_{*j*} c-commands DP_{*i*}, and
- c. DP_{*j*} does not bear a non-structural case.

(McFadden 2007: 9)

In the way the assignment rule in (27c) is formulated, it is clear that non-structural case assignment precedes structural case assignment.

3 Oblique cases in the prepositional domain

In this section we will basically argue that dative case is the regular or expected case in the prepositional domain in German. We will then also briefly mention the role of genitive in German PPs.

3.1 Dative as the regular case in PPs

Before we discuss the role of dative in the prepositional domain, we have to address a terminological issue. In the literature that we build our discussion on (Zwarts 2005, van Riemsdijk 2007, Abraham 2010) dative is often referred to as the *default case* in PPs. Nevertheless, the idea behind a default case in a morphological case framework is that it shows up as a last resort case for a certain DP if no other case is available for this DP. Ultimately, we will however argue that dative in the prepositional domain is not a default case in the sense of a last resort but rather a non-structural (or inherent) case, cf. section 2.3. This is why we will avoid throughout the remainder of this paper the term ‘default case’ but rather use the term *regular case* instead, even if we refer to literature where the term ‘default’ is used.

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 (28), 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* (both 'on') plus dative, etc.

(28)	Proto-Indo-European	German
	$\left. \begin{array}{c} \text{dative} \\ \text{instrumental} \\ \text{ablative} \\ \text{locative} \end{array} \right\} \rightarrow \text{dative}$	

Van Riemsdijk (1983, 2007) argues that dative is the regular case in oblique domains in general and thus also in the prepositional domain. He presents data with a case mismatch in German PPs. Some prepositions such as *ohne* ('without') combine with an accusative complement. Nevertheless, dative appositives to nominals that are marked with accusative by the preposition are acceptable (29a), unlike dative appositives to nominals that are marked with structural accusative by the verb (29b). This suggests that the accusative in the verbal domain differs in a yet to be specified way from the accusative in the prepositional domain (Haider 2010; see also section 4).

- (29) a. Der König kam aber ohne Krone und Zep̄ter, den
 the king came however without crown.ACC and scepter.ACC the.DAT
 wichtigsten Symbolen seiner Macht und Würde.
 most-important symbols of-his power and dignity
 'But the king arrived without crown and scepter, the most important symbols of his power and dignity.'
- b. Ich besuchte dann Herrn Müller, unseren / *unserem Vertreter in
 I visited then Mr.ACC Müller our.ACC our.DAT representative in
 Pforzheim.
 Pforzheim
 'I then visited Mr. Müller, our representative in Pforzheim.'

(van Riemsdijk 2007: 278)

Haider (2010) discusses similar data for some prepositions that take an accusative or genitive complement, such as *für* ('for') or *trotz* ('despite') respectively. They allow a

second (appositive) nominal in their complement that is marked with dative, see (30a) and (31a). Crucially, in a context that is comparable to (30a) but where accusative is not triggered by a preposition but structurally by a verb, dative is again illicit (30b). Likewise, if the genitive is not due to the preposition but due to the DP-internal structure an appositive surfaces with nominative rather than dative (31b).

- (30) a. für Österreich, als den / dem schwächeren Partner
 for Austria.ACC as the.ACC the.DAT weaker partner
 (Leirbukt 1978: 4)
- b. Österreich, als den / *dem schwächeren Partner unterstützen
 Austria.ACC as the.ACC the.DAT weaker partner support
 'support Austria as the weaker partner'
 (Haider 2010: 243)
- (31) a. trotz eines wenig begabten Mannes als politischem Berater
 despite a.GEN little gifted man.GEN as political.DAT adviser
 (Lawrenz 1993: 114)
- b. die Charakterisierung dieses Mannes als ein gefährliches
 the characterization this.GEN man.GEN as a.NOM dangerous.NOM
 Subjekt
 fellow
 'the characterization of this man as a dangerous fellow'
 (Haider 2010: 245)

We present further data as support for the idea that dative is the regular case in the prepositional domain. In German there are prepositions that weaken their idiosyncratic case assignment without a semantic shift. Some prepositions that assign genitive also occur with a dative complement but never with an accusative or a nominative complement. For example, in PPs headed by *wegen* ('due to') genitive makes way for dative but not for accusative. Consider the PPs in (32).

- (32) a. Der Zug fiel [PP wegen eines Unwetters] aus.
 the train fell due to a.GEN severe weather.GEN out
 'The train was canceled due to severe weather.'
- 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 is not restricted to *wegen* but can be found with other prepositions such as *außer*

(‘except for’), *gemäß* (‘according to’), *laut* (‘according to’), *mittels* (‘by means of’), *statt* (‘instead of’), *trotz* (‘despite’), *während* (‘during’), a.o.

This phenomenon is also not only observed on individual registers, styles, stages, etc. of German but it cuts across them. We actually find PPs that take a conjunction of two differently case-marked DPs as a complement, namely one with ‘expected’ genitive and one with ‘unexpected’ dative. Consider the examples in (33) 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 Corpus⁶, e.g. (33a), but also in texts from the European Language Newspaper Text Corpus⁷, e.g. (33b), and also in texts from poetry and fiction in the Gutenberg Corpus⁸, e.g. (33c).

- (33) a. Ich habe mir diese Memorycard [PP wegen des Speicherplatzes
I have me.DAT this memory card due to the.GEN memory space
und dem günstigen Preis] gekauft.
and the.DAT cheap price bought
‘I bought this memory card because of its memory space and its low price.’
- b. Der russische Präsident Boris Jelzin hat am Mittwoch mit den vier
the Russian president Boris Yeltsin has on Wednesday with the four
Ministern konferiert, die [PP wegen des Tschetschenienkriegs und
ministers conferred who due to the.GEN war in Chechnya and
dem Geiseldrama in Budjonnowsk] Zielscheiben vehementer Kritik
the.DAT hostage crisis in Budyonnovsk target vehement critic
in der Staatsduma geworden sind.
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 Budyonnovsk, the target of vehement criticism in the State Duma.’
- c. Die Mutter sorgte sich natürlich immer noch und wollte ihrem
the mother worried REFL certainly always still and wanted her
Sohn, wenn er endlich käme, bittere Vorwürfe [PP wegen seines
son, if he finally came bitter reproaches due to his.GEN
langen Schweigens und seinem herzlosen Leichtsinns] machen.
long silence and his.DAT cruel recklessness make

⁶Cf. Faaß & Eckart (2013)

⁷URL of European Language Newspaper Text Corpus at the Linguistic Data Consortium:<http://www.ldc.upenn.edu/Catalog/catalogEntry.jsp?catalogId=LDC95T11> (July 4, 2013)

⁸URL of Project Gutenberg: <http://www.gutenberg.org/> (July 4, 2013)

‘Of course the mother still worried and she would scold her son, if he finally came, for his long silence and his cruel recklessness.’

All of the examples in (33) are unacceptable with accusative instead of dative, again showing that accusative cannot function as the regular case in the prepositional domain. 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 (34) where the second conjunct of the apposition cannot surface as dative but necessarily exhibits genitive.

- (34) 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’

The examples above indicate that dative in fact can be considered to be the regular or prototypical case in the prepositional domain. One could now think that dative is in fact the *default case* in the prepositional domain. However, this is not plausible if a default case is a last resort option in contexts where no other case is applicable (Schütze 2001). Caha (2010) adduces an argument that dative cannot be the default case in the prepositional domain. Consider the two distinct usages of the temporal preposition *vor* (‘before’, ‘ago’) in (35).

- (35) a. Die Dinosaurier sind vor der Eiszeit ausgestorben.
 the dinosaurs are before the.DAT ice age died out
 ‘The dinosaurs died out before the ice age.’
 b. Thomas ist vor einem Jahr nach Cambridge gegangen.
 Thomas is before a.DAT year to Cambridge went
 ‘Thomas went to Cambridge a year ago.’

(Haspelmath 1997: 11)

In (35a) *vor* literally translates to ‘before’ and it denotes some point in the temporal before-region of the ice age. In (35b), however, it seems to have a non-compositional meaning as the PP does not denote some point in time that is located in the before-region of a year. Instead, the PP in (35b) denotes a point in time that is located exactly a year before the utterance time, i.e. it measures a distance backwards in time. Adopting the terminology by Haspelmath (1997), we refer to the usage of *vor* in (35a) as

the anterior-reading and to the one in (35b) as the distance-past-reading of *vor*.⁹ Caha (2010) proposes that the distance-past-reading derives from the anterior-reading. He basically analyzes the surface complement of *vor* in the distance-past-reading as a measure phrase that measures the time backwards from some silent deictic element referring to the utterance time (UT). This has the advantage that a unified anterior-reading for *vor* can be assumed. The underlying structure for the distance-past-reading of *vor* in (36) looks then like in (37).

- (36) *vor* einem Monat
 before a.DAT month
 'one month ago'

(Caha 2010: 191)

- (37) [a month [before = *vor* [UT]]]

(Caha 2010: 192)

Disregarding Caha's precise implementation concerning movement and word order here, what is crucial is the fact that measure phrases normally have access to accusative case. This can be seen in (38).

- (38) einen Monat *vor* dem Konzert
 a.ACC month before the.DAT concert
 'a month before the concert'

(Caha 2010: 193)

Yet, the complement of *vor* in the distance-past-reading does not surface with accusative case but with dative case. In fact, dative seems to 'overwrite' an underlying measure phrase accusative. However, such an overwriting would not be expected if dative was a default case, which arguably applies as a last resort case only if nothing else applies. Thus Caha (2010) reasonably concludes that dative in the prepositional domain cannot be a default case.

In order to capture the observation that dative seems to be the prototypical case in the domain of (spatial) prepositions but cannot be considered the default we propose that it is inherently connected to the (spatial) P head in a way we make more precise in

⁹In fact Haspelmath (1997) uses temporal functions with the respective names for these prepositions. We, however, only adopt the labels for the respective usages.

section 4.

Before we proceed with our proposal we briefly discuss the role of genitive case in German PPs.

3.2 On genitive in PPs

In principle genitive is found with two groups of prepositions.

On the one hand genitive occurs with (complex) prepositions that apparently involve some nominal element. Consider for example the preposition *jenseits* ('beyond') in (39a) which takes a genitive complement. Ignoring the interpretative differences for the moment, the PP in (39a) seems to be morphologically related to the DP in (40a) such that the nominal head (*Seite*) and its determiner (*jene*) incorporate into the preposition. In both cases the embedded DP shows genitive morphology.¹⁰ Additionally both instances allow a *von*-PP instead of genitive as the examples in (39b) and (40b) show. We thus assume that what explains genitive (and the *von*-PP) in (40b) can also help to explain genitive (and the *von*-PP) in (39b).

- (39) a. jenseits des Walds
 beyond the.GEN woods.GEN
 'beyond the woods'
- b. jenseits von dem Wald
 beyond of the.DAT woods.
 'beyond the woods'
- (40) a. jene Seite des Walds
 that side the.GEN woods.GEN
 'that side of the woods'
- b. jene Seite von dem Wald
 that side of the.DAT woods
 'that side of the woods'

As this kind of assignment of genitive in the prepositional domain patterns with the assignment of genitive in the nominal domain, where it is arguably regular, we consider it here to be non-idiosyncratic. However, the non-idiosyncratic genitive case assignment by prepositions is not subject of this paper and we leave it for further re-

¹⁰For a detailed structural analysis of complex spatial prepositions of this sort we refer to Svenonius (2006, 2010).

search. For discussion on *von*-PPs in the nominal domain (in particular in nominalizations) we refer to Grosz (2008).

On the other hand we find genitive with some simplex prepositions such as *wegen* ('due to') or *trotz* ('despite'). One crucial difference to the complex prepositions with non-idiosyncratic genitive assignment is that these prepositions disallow a *von*-PP instead of genitive. As an alternative they rather take a dative complement, without any semantic change (see the discussion in section 3.1). We assume that genitive case assignment by these prepositions is idiosyncratic. See (41).

- (41) a. wegen des Sturms
 due to the.GEN storm.GEN
 'due to the storm'
- b. wegen (*von) dem Sturm
 due to of the.DAT storm

In section 3.1 we discussed examples that show that this kind of idiosyncrasy is apparently fading in German.

We now turn to implement these observations.

4 The case of prepositions

Formalizing the insight that dative is the regular case in German PPs in a morphological case approach, we propose that dative is assigned to a DP in the complement position of a preposition as a non-structural case. Morphological case assignment by prepositions is thus parallel to case assignment by, e.g., applicatives. The difference is then that Appl assigns non-structural case to its specifier position while P assigns non-structural case to its complement position. We can thus formulate the rule for non-structural case assignment by prepositions as in (42).

- (42) **Non-structural case assignment by P:**
 Assign [+inf,+obl] to a DP in the complement of P.

In order to account for the idiosyncratic genitive assignment of prepositions like *wegen* and *trotz*, we can formulate the rule in (43) that exceptionally applies in some defined contexts.

(43) **Idiosyncratic case assignment in PPs:**

Assign [+gen] to a DP in the complement of $\sqrt{\text{wegen}}$, $\sqrt{\text{trotz}}$, ...

With this we can explain the common shift from genitive to dative in the examples (32), (33), and (41). The loss of genitive with this kind of preposition is then simply the result of the non-application of the idiosyncratic case assignment rule.

We propose that the stative/dynamic alternation of locative prepositions as depicted in (1) can be accounted for by an Impoverishment rule in DM (Halle 1997). An Impoverishment rule is a morphological rule that deletes, under certain conditions, one or more features from the feature bundle of a syntactic terminal node. We can identify the [+obl] feature as the one that is deleted. We further claim that the presence of the feature [+dir] constitutes a sufficient condition for the deletion of [+obl]. The deletion of [+obl] in the local context of [+dir] yields a case specification on the DP complement of P that is spelled out as accusative. We refer to this rule, which is given in (44), as *Path Impoverishment*.¹¹

(44) **Path Impoverishment:**

Delete [+obl] in the local context of [+dir].

At this point we should ask why Path Impoverishment targets the case feature [+obl] rather than [+inf]. We tackle this as follows. Assuming a hierarchical ordering of cases it is commonly argued that dative is more marked than accusative (Bayer et al. 2001, Blake 2004, Caha 2009, a.o.). That is, the distinctive case feature for dative [+obl] can be considered to be more marked than the distinctive feature for accusative [+inf], which approves the feature decomposition in (25). Such a hierarchy could be realized in terms of a stack (Müller 2011), which means that, if present in a structure,

¹¹In order to account for (non-spatial) prepositions that invariantly take an accusative-marked complement such as *ohne* ('without') and *für* ('for')—recall (29a) and (30a)—we would propose that something in the derivation of these prepositions triggers an Impoverishment rule parallel to Path Impoverishment, i.e. the deletion of [+obl]. Ideally the respective trigger is some independently motivated structural property or morphosyntactic feature, in the worst case it is idiosyncratic, which means that it is a property of the root. Parallel to the shift from idiosyncratic genitive to regular dative described above, we could account for dative in (29a) and (30a) by claiming that the non-application of the respective Impoverishment rule(s) is licit in certain (appositive) contexts. However, we leave this topic for further research.

[+obl], being more marked, is on top of [+inf]. Further, it is reasonable to assume that certain operations can only target the topmost feature(s) in a data structure like a stack (cf. *Last In, First Out* principle, e.g. Claus & Schwill 2003: 365). Path Impoverishment apparently complies with this principle.

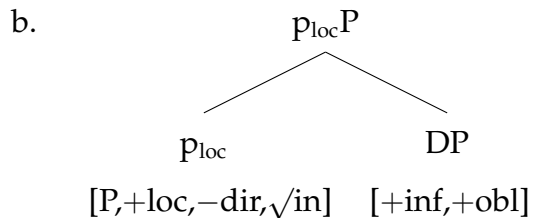
From the non-structural case assignment rule related to P as formulated in (42) it follows that nominative is unlikely to surface on the complement to a preposition. A DP in the complement position of P will always receive a case specification up to dative case, i.e. [+inf,+obl]. Unless we can identify some other Impoverishment rule deleting case features in that position, nominative does not occur here.

In what follows we derive the paradigmatic spatial prepositions discussed in the beginning.

4.1 Stative locative prepositions

The first structure we look at is the one of the stative locative version of the alternating prepositions. They take a dative complement, e.g. *in* ('in', 'within') in (45).

- (45) a. *im Wald*
 in-the.DAT woods
 ' *in the woods*'

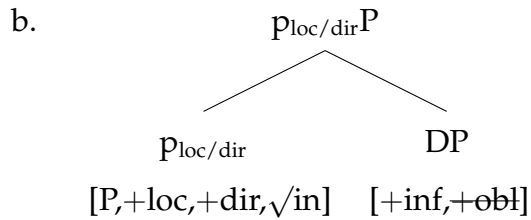


The root of an alternating preposition (here: $\sqrt{\text{in}}$) is prepositionalized by the prepositional head p_{loc} which contains a positive locative feature [+loc]. The directional feature is specified as negative [-dir]. This derivation provides the actual preposition which in turn takes a DP as the complement forming a locative PP, i.e. $p_{\text{loc}}P$. The category P triggers the post-syntactic assignment of [+inf,+obl] to its complement DP that is thus spelled out with dative case.

4.2 Dynamic locative prepositions

The next structure we look at is the directional version of the alternating prepositions, e.g. accusative-taking *in* ('into') in (46).

- (46) a. *in den Wald*
 in the.ACC woods
 'into the woods'

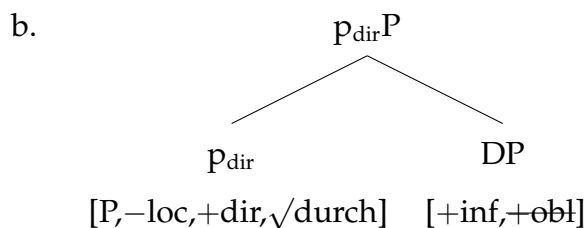


The prepositionalizing head involves, next to the category feature P, a positive locative and a positive directional feature. Again, the category feature P assigns the case features [+inf,+obl] to its DP complement post-syntactically. However, the presence of a positive directional feature on the preposition triggers Path Impoverishment such that [+obl] is deleted. With only a [+inf] feature, the DP is spelled out with accusative morphology.

4.3 Route prepositions

The next structure we look at is that of the non-alternating directional prepositions which co-occur exclusively with accusative-marked complements, i.e. route prepositions. An example is *durch* ('through') for which we propose the structure in (47).

- (47) a. *durch den Wald*
 through the.ACC woods
 'through the woods'



The root $\sqrt{\text{durch}}$ is prepositionalized by a prepositional head that contains a category feature P and a positive directional feature. The head p_{dir} also contains a negative

locative feature [–loc]. Again, the categorial feature P triggers [+inf,+obl] case assignment on its complement. The feature [+dir] triggers Path Impoverishment resulting in accusative morphology on the DP.

4.4 The case of *über*

As mentioned above, it is not expected that all ‘prepositional’ roots can occur in various prepositional configurations. For example, the German VI *in* cannot be inserted in a context as in (48b). As a result, the feature bundle in (48a) can be spelled out while the one in (48b) cannot.

- (48) a. *in* ↔ [P,+loc,–dir,√in]
 b. **in* ↔ [P,–loc,+dir,√in]

Recall that this is parallel to the question why a hypothetical verb like **hunden* does not exist in German. We claim that the respective interface rules for such items are simply not available in German (while they might exist in English, cf. ‘to dog somebody’). However, there is a prepositional root in German for which the interfaces provide contents in various configurations. Consider the spatial preposition *über* which is notoriously ambiguous. See the examples in (49) and (50).

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

The usage of *über* in (49) corresponds to the alternation pattern: a stative locative interpretation is available with a dative complement as in (49a) whereas a dynamic locative interpretation (goal) is available with an accusative complement as in (49b). In this usage *über* seems to translate best into English as ‘above’. We thus refer to this reading of *über* as the above-reading. There is however another spatial reading of *über*

(cf. Zwarts 2006, van Riemsdijk 2007). Consider the examples in (50).

- (50) a. Die Demonstranten marschierten über den Tahrir-Platz.
 the protesters marched across the.ACC Tahrir Square
 'The protesters marched across the Tahrir Square.'
- b. Der Hubschrauber flog über den Tahrir-Platz (um auf die andere
 the helicopter flew over the.ACC Tahrir Square (for on the other
 Seite zu gelangen).
 side to reach)
 'The helicopter flew over the Tahrir Square (in order to reach the other
 side).'

In (50) *über* best translates into English as 'over' or 'across', which is why we refer to this reading as the across-reading of *über*. In the across-reading *über* exclusively takes an accusative complement. It does not alternate and it thus patterns with *durch* ('through'). The two instances of *über* are distinct in the following respect. The above-reading and the across-reading of *über* are distinct with respect to their inferential behavior in the context of *wieder* ('again'), cf. section 2.1. 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. (51a) and (14a).¹² On the other hand, *über* in the across-reading patterns with *durch* as it only gives rise to a repetitive interpretation, cf. (51b) and (14b).

- (51) a. Der Helikopter flog wieder [PP über den Tahrir-Platz].
 the helicopter flew again above the.ACC Tahrir Square
 'The helicopter flew again into the above-region of the Tahrir Square.'
 → repetitive and restitutive interpretation
- b. Die Demonstranten marschierten wieder [PP über den T.-Platz].
 the protesters marched again over the.ACC T. Square
 'The protesters marched again over the Tahrir Square.'
 → repetitive interpretation only

Against this background we propose that there are in fact interface rules that provide content for the root $\sqrt{\text{über}}$ in several distinct morphosyntactic contexts. The respective morphemes can be sketched as in (52) for (49) and as in (53) for (50).

¹²Note that the example in (51a) is ambiguous between the above- and the across-reading. The restitutive interpretation is possible only in the above-reading of *über*.

- (52) a. [P,+loc,-dir,√über]
 b. [P,+loc,+dir,√über]
- (53) [P,-loc,+dir,√über]

While the above-reading is triggered in the context of a positive locative feature (52), the across-reading is triggered in the context of a negative locative feature (53). LF interface rules targeting the root √über can be stated as in (54). In particular, we propose that the root √über has at least two, and possibly more, context-sensitive LF interpretations: the above-reading and the across-reading, howsoever they are formalized semantically. As mentioned, we consider this as a case of contextual allosemy (Marantz 2011, Wood 2014), i.e. a case where a root (or a morphosyntactic feature) can receive various semantic interpretations depending on its local context.

- (54) **LF interpretations of √über:**
 “above-reading” ↔ [P,+loc,√über]
 “across-reading” ↔ [P,-loc,√über]
 ...

While the LF interpretation rules for √über are to be specified with respect to the feature [±loc], we can assume a PF interface rule for √über that is underspecified in this regard. See (55).

- (55) **PF interpretation of √über:**
über ↔ [P,√über]

With respect to case, *über* works straightforwardly in our approach. When the root √über is inserted in a context such as in (52a) the category feature P assigns [+inf,+obl] to its DP complement which then surfaces with dative. When it is inserted in a context with a positive directional feature as in (52b) and (53) Path Impoverishment deletes [+obl] on the complement of P. Thus it surfaces with accusative.

At this point our approach is superior to the one by Bierwisch (1988). While Bierwisch has to assume two independent lexical entries for *über* we can do with only one root element, i.e. √über. The root √über constitutes the conceptual core that is shared by the two readings of *über* and it receives different semantic interpretations due to

its very local syntactic context (i.e. the feature specification on the prepositionalizing head).

4.5 Directional prepositions with dative

At a first glance, the inherently directional prepositions *aus* ('out of'), *nach* ('to'), *von* ('from'), and *zu* ('to') seem to constitute a problem for our account. On the one hand they supposedly contain a positive directional feature, however, on the other hand they do not seem to trigger Path Impoverishment as they take dative complements. In fact we argue that no Path Impoverishment is triggered in the derivation of these prepositions, due to the absence of a positive directional feature.¹³ The absence of a positive directional feature does not imply that the resulting preposition does not have directional semantics. It simply means that the directional semantics of the preposition is not derived from a grammatical feature. In fact we claim that the directional semantic interpretation of these prepositions stems inherently from the respective roots rather than from the morphosyntactic feature [+dir].

Let us first look at *aus* ('out of') and *von* ('from') which both convey source rather than goal semantics. Recall the observation that all alternating prepositions, i.e. those that alternate between a specification [+loc, -dir] and [+loc, +dir], have goal semantics when used in the latter specification. In particular, the combination of a positive locative feature and a positive directional feature gives rise to **goal** semantics, which can be motivated independently on cognitive grounds by means the goal bias (Lakusta 2005, Assadollahi et al. 2006), cf. section 2.1. In contrast, the prepositions *aus* and *von* have **source** semantics. One could of course think that *aus*, for instance, conveys goal semantics with respect to the exterior, i.e. 'into the outside-region'. Consider however the sentences in (56) involving the spatial anaphora *dort* ('there').

- (56) a. Hans rannte aus dem Wald.
 Hans ran out of the.DAT woods
 'Hans ran out of the woods.'
- b. Dort war es kalt.
 there was it cold

¹³Note that an alternative to this idea would involve an idiosyncratic PF rule adds again, after Path Impoverishment, an [+obl] feature in the context of the respective roots or that prevents Path Impoverishment. These solutions, however, seem to be conceptually undesirable and are thus dispreferred.

'It was cold there.'

The spatial anaphora *dort* in (56b) uttered sequentially after (56a) gives rise to an ambiguous interpretation. It can be interpreted as referring to the region outside of the woods or, crucially, as referring to the region inside the woods. 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 however follows from the fact that the inside-region is provided inherently by the root $\sqrt{\text{aus}}$. From this we conclude that $\sqrt{\text{aus}}$ (and $\sqrt{\text{von}}$ in parallel) straightforwardly specify some region. However, their directionality does not result from the morphosyntactic feature combination [+loc,+dir], which would lead to a goal interpretation, but that it is inherently specified as source. Furthermore, we claim that the derivation of *aus* and *von* may not involve a positive directional feature because that would lead to goals semantics which clashes with the source semantics required by the roots. This gives rise to the derivation in (57), where dative follows straightforwardly from non-structural case assignment by P.

- (57) a. aus dem Wald
 out the.DAT woods
 'out of the woods'
- b.
- ```

graph TD
 p_locP --> p_loc
 p_locP --> DP
 p_loc --- p_loc_feats["[P,+loc,√aus]"]
 DP --- dp_feats["[+inf,+obl]"]

```

A similar point as for *aus* can be made for the prepositions *nach* and *zu* (both 'to'). Even though *nach* and *zu* are directional, they both do not trigger Path Impoverishment. We observe that both *nach* and *zu* in their spatial meaning are syntactically special. First, *nach* is restricted to DPs that meet the following two conditions: (i) the D head must be phonologically empty and the embedded NP must refer to some geographic entity (Haselbach 2013). See the data in (58).

- (58) a. Hans fuhr in den Wald.  
 Hans drove in the.ACC woods  
 'Hans drove into the woods.'

- b. \*Hans fuhr nach dem Wald.  
Hans drove to the.DAT woods
- c. Hans fuhr nach (\*dem) Transsilvanien.  
Hans drove to the.DAT Transylvania  
'Hans drove to Transylvania.'

Second, both *nach* and *zu* disallow complex postpositional elements containing a deictic element such as *hin* ('thither') in combination with a recurring instance of the prepositional root, which is normally allowed with other spatial prepositions.<sup>14</sup> On the other side, both *zu* and marginally *nach* are acceptable with a bare deictic element, unlike *in*.

- (59) a. Hans fuhr in den Wald hinein / \*hin.  
Hans drove in the.ACC woods thither-in thither  
'Hans drove into the woods.'
- b. Hans fuhr zum Wald \*hinzu / hin.  
Hans drove to-the.DAT woods thither-to thither  
'Hans drove to the woods.'
- c. Hans fuhr nach Transsilvanien \*hinnach / ?hin.  
Hans drove to Transylvania thither-to thither  
'Hans drove to Italy.'

From these data we can conclude that the spatial usages of *nach* and *zu* in fact differ from other spatial prepositions. We thus claim that, if used in a spatial sense, their respective roots contribute the directional semantics inherently, similar to what we claimed for  $\sqrt{\text{aus}}$ .

## 5 Conclusions and prospects

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, accusative, and partially also genitive case in German spatial PPs has the advantage of not requiring any additional specific assumptions but it follows from independently motivated principles. We argued in favor of dative being the regular case for prepositions and accusative as

<sup>14</sup>Note that in combination with *hin* the root  $\sqrt{\text{in}}$  is spelled out as *ein* rather than *in*.

well as genitive being marked (i.e. non-regular) cases triggered by some morphological rules. By applying a word-syntactic approach in the spirit of Distributed Morphology, we presented a morphological case implementation for the case distribution of German spatial prepositions. Thereby we are not only able to predict the correct case on the complement of the preposition but we also offered a syntactically transparent account to the notoriously ambiguous preposition *über* ('above' vs. 'over'/'across'). In particular, we identified this ambiguity as a case of contextual allosemy (Marantz 2011, Wood 2014) of the 'prepositional' root  $\sqrt{\text{über}}$ .

However, several questions remain open. For example, it is not clear, why and how *nach* and *zu* are special. Here, we only briefly discussed some phenomena. Further investigation of these prepositions is indeed required. Other questions that result from our proposal concern the parallelism hypothesis. The way we put it here, the core prepositional head behaves like a (high) applicative head in that it spans a non-structural case position and thus behaves unlike the core verbal head *v*, which normally does not span a non-structural case position.

In this paper we only discussed German prepositions. Even though the details have to be worked out language-specifically we think that our approach is generally transferable to other languages. Other Indo-European languages, in particular the Slavic languages and some other Germanic languages, show similar case alternation patterns as German. However, one crucial difference between Germanic and Slavic is that languages of the latter group normally display a wider variety of cases with stative locative prepositions. This might then require, on the one hand, a more fine-grained syntactic analysis of spatial PPs, as for example advocated by Svenonius on various occasions, e.g. Svenonius (2010). On the other hand, the concept of a regular case in the prepositional domain might have to be spelled out in a more detailed way cross-linguistically. While there might be some regular case triggered by the category P (which is not necessarily dative cross-linguistically) a more articulated syntactic structure might also be responsible for other non-structural cases as in the Slavic languages.

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