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Abstract

In this paper, I discuss six patterns of case mismatches in free relatives that arise in German. Four of the six have been accounted for in Bergsma (submitted), using grafting (Van Riemsdijk 2006) and the case hierarchy in nanosyntax (Caha 2009). I show that the (un)grammaticality of free relatives with case mismatches involving prepositions follows directly from this analysis. That is, if the embedded clause requires a less complex case than the main clause, additional merged features are spelled out by a separate lexical entry, and an override the spellout of the relative pronoun is avoided.

The Role of Prepositions in Case Mismatches in Free Relatives

Fenna Bergsma*

1 Introduction

Since the 1980s, mismatches in free relatives have been discussed in the literature (cf. Groos and van Riemsdijk 1981). With the main focus lying on mismatches in morphological case, only some attention was given to mismatches involving prepositions, as e.g. in (1).¹

- (1) Ich habe mich sehr gefreut über was er zurückbrachte.
I have me very pleased_{about+DP} about what.ACC he brought back_{acc}.
'I was very glad about what he brought back.'
(German, Groos and van Riemsdijk 1981:176)

In (1), *gefremt* 'pleased' takes *über* and an accusative, and *zurückbrachte* 'brought back' takes an accusative. In this paper, I discuss six patterns of case mismatches that arise in German. Four of the six have been accounted for in Bergsma (submitted), using grafting (Van Riemsdijk 2006a) and the case hierarchy in nanosyntax (Caha 2009). In this paper, I show that the (un)grammaticality of free relatives with case mismatches involving prepositions follows directly from this analysis.

2 Patterns

In this section, I discuss the two variables that determine whether a case mismatch in a free relative construction is allowed: the relative complexity of the required case in the embedded clause, and the phonological forms of the required relative pronouns.

2.1 Two Variables

The first variable is the complexity of the case required in the embedded clause in relation to the case required in the main clause, which can be either more complex or less complex. In accounting for case mismatches in free relative constructions, several scholars (cf. Grosu 1994, Pittner 1995, Vogel 2001) have made reference to hierarchical orderings of cases. For example, Vogel (2001:353) gives the ordering in (2), in which a case on the right is hierarchically higher than a case on the left. I refer to cases higher in the hierarchy as more complex cases.

- (2) nominative < accusative < dative < prepositional case

In free relative constructions with a case mismatch, the case requirements of the main and the embedded clause differ. Taking the embedded clause as a point of reference, the case required can be either less (as in (3a)) or more (as in (3b)) complex than the case required in the main clause.

- (3) a. Ich lade ein wem auch Maria vertraut.
I invite_{acc} who.ACC/who.DAT also Maria trusts_{dat}.
'I invite whoever Maria also trusts.'
b. Ich erzähle, was immer mir gefällt.
I tell_{acc} what.NOM/ACC ever me pleases_{nom}.
'I tell whatever pleases me.'
(German, Vogel 2001:344)

*I would like to thank audiences at PLC 42, GLOW 41 and CGG 28 and colleagues at Goethe University for helpful suggestions and feedback.

¹The reference to case on the verb indicates which case the verb requires its object to be in, e.g. *acc* indicates that *zurückbrachte* 'brought back' requires its object to be in accusative case.

In (3a), *vertraut* ‘trusts’ in the embedded clause requires its object to be in dative case, and *lade ein* ‘invite’ requires its object to be in accusative. As dative is more complex than accusative (see (2)), the case required in the embedded clause is more complex than the case required in the main clause. In (3b), *gefällt* ‘pleases’ in the embedded clause requires a nominative subject, and *erzähle* ‘tell’ requires its object to be in accusative case. Nominative is less complex than accusative (see (2)), so the case required in the embedded clause is less complex than the case required in the main clause.

The second variable is the phonological form of the relative pronoun that realizes the required cases. This can be (i) two distinct forms that each correspond to one of the cases, (ii) a single syncretic lexical entry that realizes both cases, or (iii) a form that realizes one case, which formally contains another form that realizes the other case. A crucial assumption I make here is that at least some cases and adpositions are syntactically identical (following cf. Asbury 2008), and that case features can be expressed by either affixes or adpositions. Table 1 shows the three different types of phonological forms.

distinct forms	<i>wen</i> ‘who.ACC’	<i>wem</i> ‘who.DAT’
syncretism	<i>was</i> ‘what.NOM’ = ‘what.ACC’	
formal containment	<i>über was</i> ‘about what.ACC’	<i>was</i> ‘what.ACC’

Table 1: Different types of phonological form of the relate pronoun.

The first row gives an example of two distinct forms. The accusative form for *who* in German is expressed by *wen*, and the dative is expressed by a different form: *wem*. The second row exemplifies a syncretic form. German has a single form that expresses *what* in both nominative and in accusative, namely *was*. In the third row, the one form formally contains the other. That is, *über was* contains the form *was*.

2.2 Illustration per Pattern

Combining the two variables discussed in the previous subsection, six patterns arise. These patterns and their grammaticality are shown in Table 2, and exemplified in this section.

	case in embedded clause	
	more complex	less complex
distinct forms	✓	*
syncretism	✓	✓
formal containment	✓	✓

Table 2: Grammaticality of patterns.

In (4), the two required cases are the accusative and dative, which correspond to two distinct lexical entries: *wen* for accusative, *wem* for dative.

- (4) a. Ich lade ein **wen/wem* auch Maria vertraut.
 I invite_{acc} who.ACC/who.DAT also Maria trusts_{dat}
 ‘I invite whoever Maria also trusts.’
- b. *Ich vertraue *wen/wem* auch Maria mag.
 I trust_{dat} who.ACC/who.DAT also Maria likes_{acc}
 ‘I trust whoever Maria also likes.’
 (German, Vogel 2001:344,345)

If the more complex case (the dative) is required in the embedded clause, the sentence is grammatical, as long as the relative pronoun for the more complex case is used (see (4a)). If the less complex case (accusative) is required in the embedded clause, the sentence is ungrammatical (see (4b)), independent of which relative pronoun is used.

In (5), the two required cases are nominative and accusative, for which there is a single syncretic form: *was*.

- (5) a. Was ich nicht weiß, macht mich nicht heiß.
 What.NOM/ACC I not know_{acc} makes_{nom} me not hot
 ‘What I don’t know doesn’t excite me.’
 b. Ich erzähle, was immer mir gefällt.
 I tell_{acc} what.NOM/ACC ever me pleases_{nom}
 ‘I tell whatever pleases me.’
 (German, Vogel 2001:363,344)

The sentences with the syncretic form are grammatical, independent of whether the embedded clause requires the more complex case (as in (5a)) or the less complex case (as in (5b)).

In (6), the two cases required are (abstract) locative case (expressed by the prepositions *auf wen* ‘on who.ACC’ and *über was* ‘about what.ACC’), and accusative (either *wen* ‘who.ACC’ or *was* ‘what.ACC’). The forms that express (abstract) locative case formally contain the forms expressing accusative: *auf wen* contains *wen*, and *über was* contains *was*.

- (6) a. Ich lade ein auf wen sich auch Maria freuen würde.
 I invite_{acc} on who.ACC self also Maria be happy_{on+DP} would
 ‘I invite whoever also Maria would be happy to meet.’
 (German, Vogel 2001:344)
 b. Ich habe mich sehr gefreut über was er zurückbrachte.
 I have me very pleased_{about+DP} about what.ACC he brought back_{acc}.
 ‘I was very glad about what he brought back.’
 (German, Groos and van Riemsdijk 1981:176)

The sentences are grammatical, regardless of whether the embedded clause requires the more complex (abstract locative) case, as in (6a), or the less complex (accusative) case, as in (6b).

To summarize, as long as the more complex case is required in the embedded clause, the sentences are grammatical, and the phonology of the relative pronoun does not play a role (see left column in Table 2). If the case required in the embedded clause is less complex, and two distinct forms correspond to the required cases, the sentence is ungrammatical (see upper-right cell in Table 2). However, if the case required is less complex, but there is a single syncretic form that corresponds to both cases, the sentence is grammatical (see middle-right cell in Table 2). The same applies to the sentence in which the case required is less complex and one form formally contains the other one (see lower-right cell in Table 2).

3 Theory

In this section I introduce the theoretical assumptions used in the analysis. I discuss how cases are organized in a universal case hierarchy (Caha 2009), with each case feature corresponding to its own terminal node, as in nanosyntax (Starke 2009). I discuss the concept of grafting, introduced by Van Riemsdijk (2006a), to account for the syntax of a free relative construction, and how the relative pronoun is part of both the main and embedded clause. The combination of grafting and the case hierarchy in nanosyntax has been shown to account for four of the six patterns in Table 2.

3.1 Case Hierarchy in Nanosyntax

Caha (2009) proposes that case features are organized in a universal hierarchy. This hierarchy is not specific to nanosyntax: there is typological evidence for the ordering (Blake 1994), and there is a version incorporated in work in Distributed Morphology (Smith et al. 2018). Further empirical evidence for this hierarchy comes from (case and prepositional) syncretisms, the role of functional prepositions, case compounding, and preposition stacking (see Caha 2009). Caha (2009) works in nanosyntax, and implements the case hierarchy in a syntactic structure, as shown in Figure 1. In nanosyntax (Starke 2009), syntactic trees are built by the merge of individual atomic features. These features correspond to their own terminal nodes in the syntactic tree. For the case hierarchy this means that higher, more complex cases always contain the smaller, less complex cases.

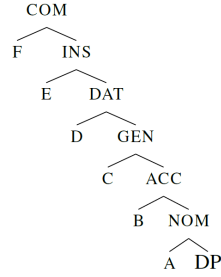


Figure 1: Case hierarchy in nanosyntax.

Spellout is the establishment of a connection between syntactic structure and phonological form. Lexical entries can target either terminal nodes or several contiguous nodes. Spellout of several nodes is called phrasal spellout. Spellout is regulated by the following principles.

- (7) a. **Superset principle:** a lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node (Starke 2009:3)
 b. **Elsewhere condition:** if several lexical items match the root node, the candidate with the least unused nodes wins. (Starke 2009:4)

These principles together ensure that a lexical entry is inserted if the lexical tree contains all features that the syntactic tree also contains, but that unused nodes are avoided. Keeping this in mind, the lexical entries for the German free relatives discussed in this paper look as follows.²

- (8) a. [DAT [GEN [ACC [NOM [MASC [XP]]]]]] \Leftrightarrow /wem/
 b. [ACC [NOM [MASC [XP]]]] \Leftrightarrow /wen/
 c. [ACC [NOM [NEUT [XP]]]] \Leftrightarrow /was/

In (8a), the lexical entry for *wem* ‘who.DAT’ is given, which contains all case features up to the dative, masculine gender features and an XP.³ *Wen* ‘who.ACC’ in (8b) corresponds to all case features up to accusative, masculine gender features and an XP. The lexical entry for *was* ‘what.ACC’ contains all features up to the accusative, neuter gender features and an XP. Remember that *was* ‘what.ACC’ is syncretic between nominative and accusative. Consequently, there is no separate lexical entry for the nominative specifically, and (8c) is inserted as both accusative and nominative.

3.2 Grafting

A second assumption is the use of a type of merge called grafting (Van Riemsdijk 2006a). Grafting means that embedded features are remerged in a different structure, i.e. grafted.

In grafting, the properties of internal and external merge are combined. Just like with external merge, two distinct structures are combined, and, like with internal merge, a subpart of an existing structure is one of the merging objects. In Figure 2, merge has been applied to B and D.

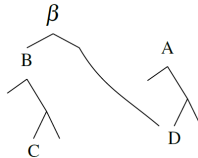


Figure 2: Illustration of grafting.

²For reasons of space, the structure of the lexical entries is slightly simplified. For a more elaborate analysis, see Bergsma (submitted).

³The XP contains features that I remain agnostic about for now.

D is a subpart of an existing structure and it remerges with the distinct structure B (i.e. it is grafted). Consequently, D is the element that is shared between the two structures. It is a sister of B but still preserves the structural relations within its own structure (Van Riemsdijk 2006a:22).

Van Riemsdijk (2006b) argues that grafting should be introduced to ensure that the relative pronoun in a free relative construction is part of both the main and the embedded clause.

3.3 Combining Grafting with the Case Hierarchy

In Bergsma (submitted), I argued that the combination of grafting and the case hierarchy in nanosyntax can account for four of the six patterns in Table 3.⁴ In free relative constructions, the embedded clause is created first, and the predicate combines with the case node it requires.⁵ If the case required by the main clause is available in the syntactic structure of the relative pronoun, it grafts with the required case node (Type 1 in Table 3). If the required case node is not available in the relative pronoun, additional case features are added, but there is a restriction: it is not permitted to cause a change in spellout. For Type 2 in Table 3, the only way to spellout the additional features is to override the spellout of the relative pronoun, so the restriction is violated, and the sentence is ungrammatical. In Type 3 in Table 3, the restriction is not violated, the additional features are spelled out by the lexical entry that has already been inserted, and the sentence is grammatical.

	case in embedded clause	
	more complex	less complex
distinct forms	type 1	type 2(*)
syncretism	type 1	type 3
formal containment		

Table 3: Patterns and types accounted for in Bergsma (submitted).

3.3.1 Type 1: Merge with Embedded Case Features

I start with discussing the derivation in which the predicate in the main clause merges with embedded case features. The derivation is illustrated with the example in (9), but it also applies to (5a) (and to (6a)), in which the embedded clause also requires the more complex case.

- (9) Ich lade ein *wen/wem auch Maria vertraut.
 I invite_{acc} who.ACC/who.DAT also Maria trusts_{dat}
 ‘I invite whoever Maria also trusts.’
 (German, Vogel 2001:344)

The derivation of (9) is shown in Figure 3.

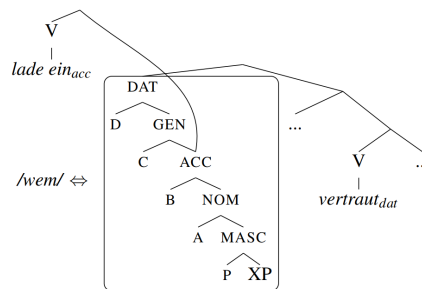


Figure 3: Derivation of (9).

⁴For a more detailed discussion of the analysis, see Bergsma (submitted).

⁵I refrain from discussing argument selection, and simply merge the predicate with the required case node.

First, the embedded clause predicate *vertraut* ‘trusts’ combines with the dative case node. All case features up to the dative are spelled out as *wem*, as they match the lexical entry in (8a). Next, the main clause predicate *lade ein* ‘invite’ combines with the accusative case feature that is embedded in the dative, and the sentence is grammatical.

3.3.2 Type 2: Change in Spellout

Second, I describe the ungrammatical example, in which additional features can only be spelled out if the form of the relative pronoun is changed.

- (10) *Ich vertraue wen/wem auch Maria mag.
 I trust_{dat} who.ACC/who.DAT also Maria likes_{acc}
 ‘I trust whoever Maria also likes.’
 (German, Vogel 2001:345)

The derivation of (10) is shown in Figure 4.

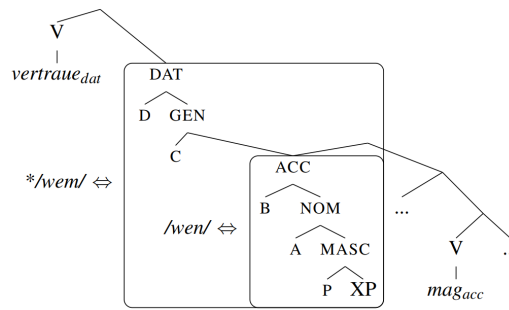


Figure 4: Derivation of (10).

First, the embedded clause predicate *mag* ‘likes’ combines with the accusative node. All case features up to the accusative are spelled out as *wem*, as they match the lexical entry in (8b). Unlike in the previous example, the main predicate cannot merge with an embedded case feature. The accusative does not contain a dative case feature that *vertraue* ‘trust’ can combine with. Instead, additional case features are added. In nanosyntax, it is not permitted to leave features unrealized, so the genitive and dative case features need to be spelled out. However, the additional genitive and dative case features can only be spelled out, if the accusative (and all features it contains) is overridden by the lexical entry for the dative *wem*, as in (8a). As overriding of the spellout of the relative pronoun is not permitted, the construction is ungrammatical.

3.3.3 Type 3: Same Spellout

Next, I describe the syncretic example, in which the additional features are spelled out by the lexical entry that has already been inserted.

- (11) Ich erzähle, was immer mir gefällt.
 I tell_{acc} what.NOM/ACC ever me pleases_{nom}
 ‘I tell whatever pleases me.’
 (German, Vogel 2001:344)

The derivation of (11) is shown in Figure 5. First, the embedded clause predicate *gefällt* ‘pleases’ combines with the nominative node. All case features up to the nominative are spelled out as *was*, as they match the lexical entry in (8c) via the Superset Principle. Like in the previous example, the main predicate cannot merge with an embedded case feature. The nominative does not contain an accusative case feature that *erzähle* ‘tell’ can combine with. Instead, additional case features are added. The accusative case features are spelled out by the lexical entry that is inserted for the nominative, and the construction is grammatical.

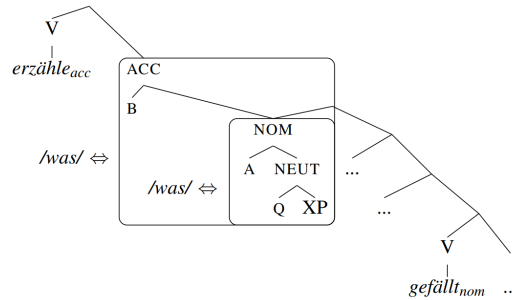


Figure 5: Derivation of (11).

4 Prepositions in Case Mismatches

In Section 3.3, I showed that in the analysis of Bergsma (submitted), the addition of case features is subject to a restriction: it is not permitted to cause a change in spellout. Type 3 in Section 3.3.3 illustrated the possibility to use the same spellout for later merged features. A second option is to have a separate spellout for the later merged features, which introduces the Type 4 in Table 4.⁶

	case in embedded clause	
	more complex	less complex
distinct forms	type 1	type 2(*)
syncretism	type 1	type 3
formal containment	type 1	type 4

Table 4: Patterns and types accounted for with this paper.

I start by explaining how prepositions are handled in the case hierarchy. Secondly, I discuss the derivation of Type 4. Next, I go through a derivation of Type 2 involving a preposition. Lastly, I make a cross-linguistic comparison with Dutch.

4.1 Prepositions in the Case Hierarchy

Case can be expressed by either affixes or adpositions.⁷ In German, the dative and less complex cases are expressed by suffixes, and the instrumental and comitative are expressed by a preposition *mit* ‘with’. The lexical entry looks as in (12).

(12) [COM [INS]] ⇔ /mit/

Mit corresponds to comitative and instrumental features. It does not contain the lower cases, as it always combines with a dative-cased DP.

4.2 Type 4: Separate Spellout

In this section, I discuss the example in which the additional features are spelled out by a separate lexical entry, and the spellout of the relative pronoun is not changed. Instead of giving the derivation of the examples in (6) with abstract locative cases, I discuss a German example with comitative in 6b. The derivations for the examples in (13) should be the same, only with larger syntactic structures.

⁶As briefly mentioned in Section 3.3.1, the lower-left cell in Table 4 is analyzed as Type 1: the predicate from the main clause remerges with features that are available in the syntactic structure.

⁷In terms of nanosyntax, it is language-specific how high the DP may move in the tree in Figure (1). Any case that is below this point will be expressed with a suffix in a language, and any case above this point will be expressed by a preposition (Caha 2009). I omitted this movement of the DP, and simplified the derivation for reasons of space, but I actually assume that the XP in e.g. (5) moves above the accusative.

- (13) Ich tanze mit wem du vertraust.
 I dance_{com} with who.DAT you trust_{dat}
 ‘I dance with whoever you trust.’

In (13), *vertraust* ‘trusts’ requires its object to be in dative case, and *tanze* ‘dance’ combines with a comitative. *Mit wem* ‘with who.DAT’ is able to satisfy both these case requirements. The derivation of (13) is shown in Figure 6.

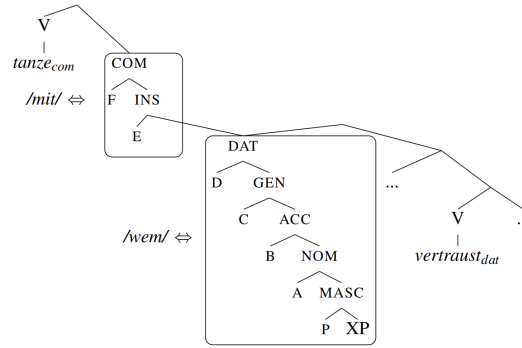


Figure 6: Derivation of (13).

First, the embedded clause predicate *vertraust* ‘trust’ combines with the dative node. All case features up to the dative are spelled out as *wem*, as they match the lexical entry in (8a). Like in the previous example, the main predicate cannot merge with an embedded case feature. The dative does not contain a comitative case feature that *tanze* ‘dance’ can combine with. Instead, additional case features are added. The comitative and instrumental case features are spelled out by the separate lexical entry (12). As the spellout of the relative pronoun remains identical, the construction is grammatical.

4.3 Type 2 with a Preposition

In this section, I discuss an example in which some but not all of the additional features are spelled out by a separate lexical entry, and the spellout of the relative pronoun still needs to be changed.

- (14) *Ich tanze mit wen/wem du gestern eingeladen hast.
 I dance_{com} with who.ACC/who.DAT you yesterday invited_{acc} have
 ‘I dance with who you invited yesterday.’

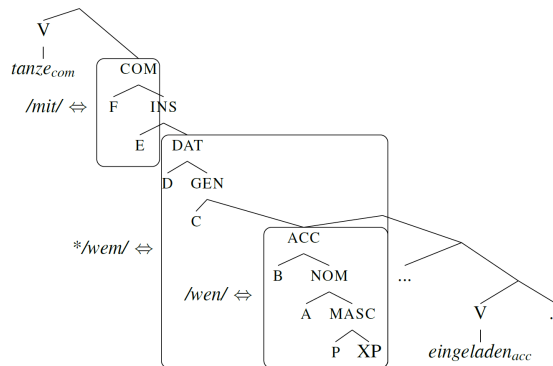


Figure 7: Derivation of (14).

In (14), the embedded clause predicate *eingeladen* ‘invited’ requires its object to be in accusative, and the main clause predicate *tanze* ‘dance’ combines with a comitative. The derivation of (14) is shown in Figure 7.

First, the embedded clause predicate *eingeladen* ‘invited’ combines with the accusative node. All case features up to the accusative are spelled out as *wen*, as they match the lexical entry in (8b). The main predicate cannot merge with an embedded case feature, as the accusative does not contain a comitative case feature that *tanze* ‘dance’ can combine with. Instead, additional case features are added. The comitative and instrumental features can be spelled out by a separate lexical entry, but the additional genitive and dative case features can only be spelled out, if the accusative (and all features it contains) is overridden by the lexical entry for the dative *wem*, as in (8a). As overriding of the spellout of the relative pronoun is not permitted, the construction is ungrammatical. This derivation is of Type 2 and is identical to that of (10).

4.4 Type 4 in Dutch

This analysis can also account for an cross linguistic difference between German and Dutch.

- (15) Ik danste met wie jij gisteren zag.
 I danced_{com} with who.ACC you yesterday saw_{acc}
 ‘I danced with who you saw yesterday.’

In (15), the embedded clause predicate *zag* ‘saw’ requires its object to be in accusative, and the main clause predicate *danste* ‘danced’ combines with a comitative. Although these case requirements are identical to those of the German example in (14), the German example is ungrammatical, but the Dutch one is not.

Dutch only morphologically distinguishes nominative and accusative case. Cases more complex than the accusative are expressed by prepositions.⁸ Therefore, the lexical entries for Dutch look as follows.

- (16) a. [ACC [NOM [MASC [XP]]]] ⇔ /wie/
- b. [COM [INS [DAT [GEN]]]] ⇔ /met/

In (16a), the lexical entry for *wie* ‘who.ACC’ is given, which contains all case features up to the accusative, masculine gender features and an XP. *Met* ‘with’ in (16b) corresponds to comitative, instrumental, dative and genitive features. Differently from German, it contains genitive and dative features, alongside comitative and instrumental features. The derivation of (15) is shown in Figure 8.

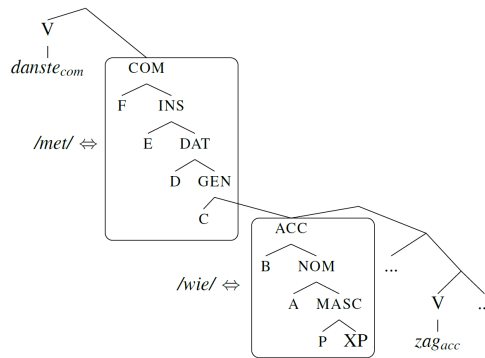


Figure 8: Derivation of (15).

⁸In terms of nanosyntax: it is a language specific property of Dutch that the DP only moves as high as above the accusative in a nanosyntactic tree.

First, the embedded clause predicate *zag* ‘zag’ combines with the accusative node. All case features up to the accusative are spelled out as *wie*. The main predicate cannot merge with an embedded case feature, as the accusative does not contain a comitative case feature that *danste* ‘danced’ can combine with. Instead, additional case features are added. The comitative, instrumental, dative and genitive case features are spelled out by the separate lexical entry *met*. As the spellout of the relative pronoun remains identical, the construction is grammatical. This derivation is of Type 4 and is identical to that of (13).

In sum, the difference in grammaticality between (14) and (15) is derived from the different size of syntactic structure that the prepositions *mit* and *met* ‘with’ realize.

5 Conclusion

In this paper, I extended the analysis in Bergsma (submitted) to the domain of case mismatches involving prepositions. This follows by assuming that prepositions spell out case, just like suffixes. Therefore, the analysis strengthens the claim that case can be expressed by either affixes or adpositions. Cross linguistic variation follows from differences in the size of lexical entries between languages.

Furthermore, the analysis supports the claim that spellout of an element in an embedded clause cannot be overridden. In Bergsma (submitted), I showed that if an embedded clause in a free relative construction requires a less complex case than the main clause, additional case features are added. The derivation however crashes if the spellout of these additional features changes the spellout of the relative pronoun, but the construction is saved if the spellout remains the same (for syncretic lexical entries). In this paper, I showed that if the additional features are spelled out by a separate lexical entry (and the spellout of the relative pronoun remains the same), the construction is saved as well.

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