Mismatches in free relatives

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1 Introduction

Generally, a single noun phrase satisfies a single case requirement.[1]

(1) a. Ich sehe | sie |.
         I   see$_{acc}$ her$_{ACC}$

         'I see her.'

     b. Ich vertraue | einem | [| den | ich eingeladen habe].
         I   trust$_{dat}$ one$_{DAT}$ who$_{ACC}$ I   invited$_{acc}$ have

         'I trust the one, who I have invited.'   (Vogel 2001, p. 357)

However, in constructions like free relatives, a single form satisfies more than one case requirement.

(2) Ich lade ein [| wen | auch Maria mag].
     I   invite$_{acc}$ who$_{ACC}$ also Maria likes$_{acc}$.

     'I invite whoever Maria also likes.'   (Vogel 2001, p. 344)

Moreover, a single form can also satisfy multiple different case requirements.

(3) [| 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.'   (Vogel 2001, p. 363)

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[1] All examples are from German, unless indicated differently.

However, it is not always possible to satisfy multiple different requirements, i.e. there are restrictions.

(4) * Ich vertraue [| wem |/ | wen | auch Maria mag   ].
        I   trust$_{dat}$ who$_{DAT}$/ who$_{ACC}$ also Maria likes$_{acc}$.

     'I trust whoever Maria also likes.'   (Vogel 2001, p. 345)

Two observations

1 Syncretisms resolve feature mismatches (cf. Groos and Van Riemsdijk 1981, Zaenen and Karttunen 1984, Dyta 1984, Pullum and Zwicky 1986, Ingria 1990, Dalrymple and Kaplan 2000, Sag 2003, Asarina 2011, Himmelreich 2017, Van Riemsdijk to appear).

2 Mismatches are resolved if the more complex case is required in the embedded clause (NOM < ACC < GEN < DAT < …) (cf. Pittner 1991, Pittner 1995, Vogel 2001, Grosu 2003, Himmelreich 2017, Van Riemsdijk to appear).

- Recently, the resolution of case mismatches has received quite some attention (cf. Asarina 2011, Himmelreich 2017).

- In my analysis, Caha 2009's universal case hierarchy is the point of departure. Combining this approach with grafting (i.e. remerging of embedded features as in Van Riemsdijk 2006b), I show how restrictions on mismatches in free relatives follow naturally.

Proposal

1 The free relative pronoun takes the case that is required in the relative clause.

   The syntactic structure of the free relative pronoun remains available for merge, but its spellout cannot be overwritten.

2 The free relative pronoun can satisfy also the case requirement of the main clause if:

   (a) The required case feature is available in the syntactic structure of the free relative pronoun.

       or

   (b) Additional syntactic structure is added without changing the spellout of the free relative pronoun.

This talk

1 Further evidence that case is internally complex

2 Further evidence that syntactic structure can be shared

3 In certain contexts, syntactic structure remains visible, while spellout cannot be overwritten (cf. the Morph Integrity Hypothesis of Bermúdez-Otero 2012)

Assumptions

1 Cases are in a containment relation and each have their own terminal node (Caha 2009).

2 Spellout is regulated by the superset principle, the elsewhere condition and the principle of cyclic override (Starke 2009).

3 Embedded features can be remerged into a different structure (i.e. grafted, Van Riemsdijk 2006b).

4 Syntax is constructed bottom-up.

Outline

- Data

- Theoretical background

  ◦ Case hierarchy

  ◦ Spellout

  ◦ Grafting

- Analysis

- Predictions

- Two previous accounts

- Conclusion

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2 Data

In (5) the case requirements in the main and embedded clause match. Both main and embedded clause verbs require their object to be in accusative.

(5) Ich lade ein [wen   auch Maria mag].
     I   invite$_{acc}$ who$_{ACC}$ also Maria likes$_{acc}$.

     'I invite whoever Maria also likes.'   (Vogel 2001, p. 344)

The case requirements in (6) differ: the embedded clause requires its object to be in dative, the main clause requires it to be in accusative. German has two distinct forms for these cases in masculine: *wen* for accusative, *wem* for dative. This sentence is grammatical as long as the dative free relative pronoun is used.[2,3]

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[2]In some versions of German and Polish, mismatches with distinct lexical entries are never allowed, and (6b) is ungrammatical too. I put these aside for now, but presumably these speakers require a more strict form of matching.

[3]For now I also leave languages as Icelandic, (Ancient) Greek and Gothic aside, which seem to show even different patterns.

(6)   a. * Ich lade ein [wen   auch Maria vertraut].
             I   invite$_{acc}$ who$_{ACC}$ also Maria trusts$_{dat}$.

             'I invite whoever Maria also trusts.'   (Vogel 2001, p. 344)

        b. Ich lade ein [wem   auch Maria vertraut].
             I   invite$_{acc}$ who$_{DAT}$ also Maria trusts$_{dat}$.

             'I invite whoever Maria also trusts.'   (Vogel 2001, p. 344)

In (7) the case requirements are reversed: the embedded clause requires its object to be in accusative and the main clause requires it to be in dative. Whichever free relative pronoun is used, the sentence is ungrammatical.[4]

(7)   * Ich vertraue [wen /   wem   auch Maria mag].
        I   trust$_{dat}$ who$_{ACC}$/ who$_{DAT}$ also Maria likes$_{acc}$.

        'I trust whoever Maria also likes.'   (Vogel 2001, p. 345)

In (8), the two required cases are nominative and accusative. German has one syncretic form for these cases in neuter: *was*. The sentence is grammatical independent of which clause requires which case.

(8)   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.'   (Vogel 2001, p. 363)

        b. Ich erzähle, [was   immer mir gefällt].
             I   tell$_{acc}$ what$_{NOM/ACC}$ ever   me pleases$_{nom}$

             'I tell whatever pleases me.'   (Vogel 2001, p. 344)

(9)   Summary

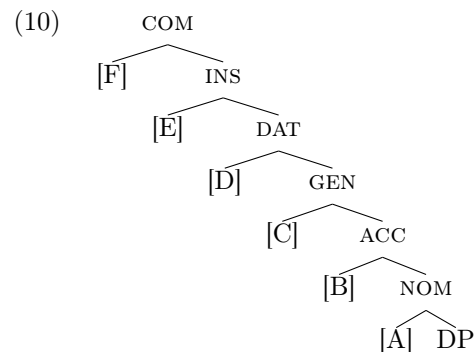|	more complex case	
	embedded clause	main clause
distinct forms	✓	*
syncretism	✓	✓

3   Theoretical background

I discuss the case hierarchy, spellout and grafting.

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[4]More data in Appendix I shows that the pattern described in (6) and (7) hold also holds for other cases.

3.1   Case hierarchy

Caha (2009) proposes that case features are organized in a universal hierarchy. Higher, more complex cases always contain the smaller, lower cases. This hierarchy is not specific to nanosyntax (cf. Smith et al. 2018).

(10)
```
          COM
       ┌───┴───┐
     [F]      INS
          ┌────┴────┐
        [E]       DAT
              ┌────┴────┐
            [D]       GEN
                  ┌────┴────┐
                [C]       ACC
                      ┌────┴────┐
                    [B]       NOM
                          ┌────┴────┐
                        [A]       DP
```

- Caha provides evidence for this hierarchy from (case and prepositional) syncretisms (see (11)), the role of functional prepositions, case compounding (see (12)) and preposition stacking.

- Case syncretism targets contiguous regions in the case hierarchy (8/15 contiguous vs. 1/42 non-contiguous syncretisms in Russian).

(11)   Russian (Caha 2009, p. 12)

|	'window'	'teachers'	'both'	'book'	'100'
NOM	okn-**o**	ucitel-ja	dv-a	knig-a	st-o
ACC	okn-**o**	ucitel-**ej**	dv-a	knig-u	st-o
GEN	okn-a	ucitel-**ej**	dv-**ux**	knig-y	st-**a**
PREP	okn-e	ucitel-jax	dv**ux**	knig-**e**	st-**a**
DAT	okn-u	ucitel-am	dv-um	knig-**e**	st-**a**
INS	okn-om	ucitel-ami	dv-umja	knig-oj	st-**a**

In West Tocharian, the GEN/DAT plural *m-ts* is built from the ACC *m*.

(12)   West Tocharian (Caha 2009, p. 69 after Gippert 1987)

	'horses'	'men'
NOM	yakwi	eṅkwi
ACC	yakwe-**ṃ**	eṅkwe-**ṃ**
GEN/DAT	yäkwe-**ṃ**-ts	eṅkwe-**ṃ**-ts

Case can be expressed by either affixes or adpositions. It is language specific how high the DP may move in the tree in (10). Any case that is below this point is expressed with a suffix, and more complex cases are expressed by a preposition.

(13)   *mit dem* 'with who$_{DAT}$'
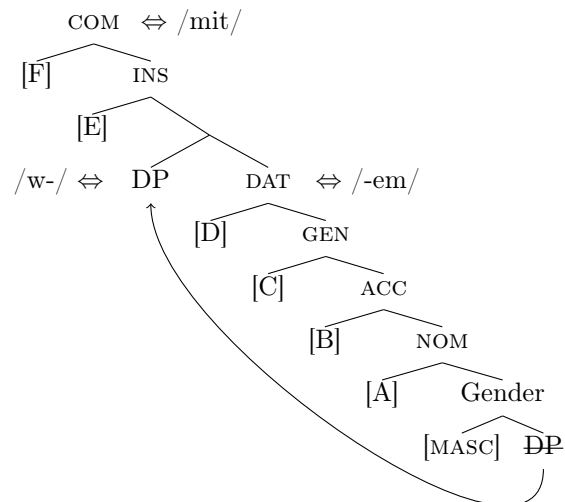
3.2   Principles of spellout

- In nanosyntax (Starke 2009), syntactic trees are built by merge from individual atomic features. These features correspond to their own terminal node in the syntactic tree.

- 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.

Three principles regulate lexical insertion.

- Superset principle: a lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node (Starke 2009, p. 3)

- Elsewhere condition: if several lexical items match the root node, the candidate with least unused nodes wins. (Starke 2009, p. 4)

- Principle of cyclic override: each successful spellout overrides previous successful spellouts (Starke 2009, p. 4)
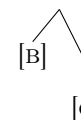
I give two abstract lexical entries and three syntactic structures.

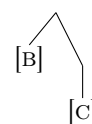(14)   Lexical entries
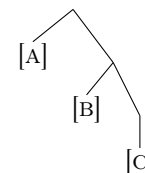
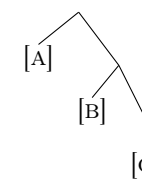   a. $p \Leftrightarrow$ b. $q \Leftrightarrow$

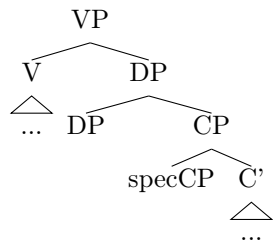(15)   Syntactic structures

     a.   [C]   c.

     b.

- Spellout of [C] in (15a)

   ○ Both [A[B[C]]] and [B[C]] in are a superset of [C] (superset princple).

   ○ [B[C]] has less superfluous material than [A[B[C]]] (elsewhere condition).

   ○ Therefore, *q* is inserted.

- Spellout of [B[C]] in (15b)

   ○ [A[B[C]]] and [B[C]] are a (proper) superset of the structure (superset principle).

   ○ [B[C]] has no superfluous material but [A[B[C]]] does (elsewhere condition).

   ○ Therefore, *q* is inserted again.

- Spellout of [A[B[C]]] in (15c)

  ○ [B[C]] is not a superset of the syntactic structure, as it does not contain [A] (superset principle).

  ○ [A[B[C]]], however, contains all features.

  ○ Therefore, p is inserted.

3.3 Grafting

Two positions are considered for the free relative pronoun.

(16) a. I like ⟦the book⟧ ⟦that⟧ you have finished reading.

  b. I like ⟦what⟧ you have finished reading.

  c.

```
            VP
          /    \
         V      DP
        /\     /   \
       … DP        CP
         /        /  \
       …  DP   specCP  C'
                        /\
                        …
```

3.3.1 Free relative in the main clause

- Bresnan and Grimshaw (1978) claimed that the free relative pronoun should be in the main clause, as it can trigger number agreement in the main clause. Himmelreich (2017) shows that this argument also holds in German.

- A plural wh-subject requires plural number agreement in the clause.

(17) [Welche Bücher] ⟦haben⟧/ *hat   dir gefallen?
      which   book.PL have.PL/ have.SG you liked
      'Which books did you like?'

Wh-phrases that occur in embedded clauses (e.g. indirect interrogative clauses) do not affect the number agreement in the main clause.

(18) [Welche Bücher ihm gefallen], ⟦ist⟧/   *sind unklar.
      which   book.PL him like,   be.SG/ be.PL unclear
      'It is unclear which books he likes.'

In free relatives, the wh-phrase requires plural agreement.[5]

(19) [[Welche Bücher] ich auch immer gelesen habe], ⟦haben⟧/ *hat   mir
       which   book.PL I   ever   read   have, have.PL/ have.SG me
      gefallen.
      liked
      'I liked whatever books I read.'

3.3.2 Free relative in the embedded clause

- Groos and Van Riemsdijk (1981) argued that the free relative pronoun should be in the embedded clause, using evidence from relative clause extraposition.

- In a headed relative construction, the relative clause can be extraposed (as in (20b)), but it is not possible to extrapose the DP from the main clause including relative clause (as in (20c)).

(20) a. Der Hans hat [das Geld, das   er gestohlen hat], zurückgegeben.
          the Hans has the money which he stolen   has   returned
          'Hans has returned the money that he has stolen.'

  b. Der Hans hat [das Geld] zurückgegeben, [das   er gestohlen hat].
          the Hans has the money returned   which he stolen   has
          'Hans has returned the money that he has stolen.'

  c. * Der Hans hat zurückgegeben, [das Geld, das   er gestohlen hat].
          the Hans has returned   the money which he stolen   has
   'Hans has returned the money that he has stolen.'

The free relative pronoun patterns with the embedded clause and it does not take the position of the DP of the main clause.

(21) a. * Der Hans hat [was] zurückgegeben, [er gestohlen hat].
            the Hans has what returned   he stolen   has
          'Hans has returned what he has stolen.'

  b. Der Hans hat [e] zurückgegeben, [was er gestohlen hat]
          the Hans has   returned   what he stolen   has
   'Hans has returned what he has stolen.'

---

[5]Himmelreich gives examples of complex wh-phrases in German, since simple wh-phrases always have singular number agreement. In Spanish, number agreement with free relatives also occurs with simple plural wh-phrases (Himmelreich 2017, p. 168).

### 3.3.3   Free relative in both clauses

- Taking also matching effects into account, Van Riemsdijk (2006b) argues for an alternative in which the free relative pronoun is simultaneously the DP in the main clause and in specCP of the embedded clause and: grafting.

- This special type of merge must exist, when all logical combinations of internal and external merge are taken into account.

- In (22a) below, [A] and [B] are combined with external merge: the two distinct structures are taken and combined in a structure.

(22)   a.   [A]   [B]
       b.   β   [A]   [B]
       [C]   [C]
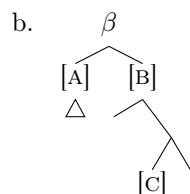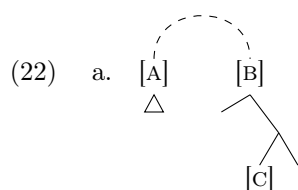
Internal merge takes a subpart of an existing structure as one of the two objects. In (23a), a subpart of a structure called [C] is combined with [B] via internal merge. The result is the movement of [C].

(23)   a.   [B]
       [C]
       b.   β   [C]   [B]
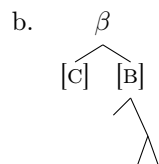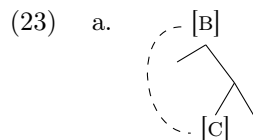
In (24a), merge applies to [B] and [D]: [D] is a subpart of an existing structure and [B] is the distinct structure. In (24b), [D] is the shared element. It is a sister of [B] but still preserves the structural relations with its own structure (Van Riemsdijk 2006b, p. 22).

(24)   a.   [B]
       [C]   [A]
       [D]

b.   β
   [B]   [A]
   [C]   [D]
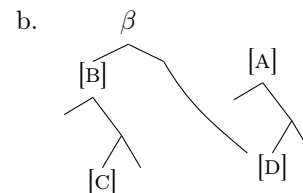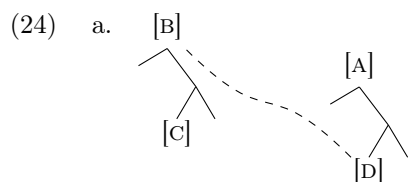
Additional arguments for a grafting approach come from so-called transparant free relatives (Van Riemsdijk 2006a, p. 22).

(25)   What appeared to be ⟦a jet airliner⟧ had landed on the freeway.

4   Analysis

> **Proposal**
>
> 1 The free relative pronoun takes the case that is required in the relative clause.
>
>   The syntactic structure of the free relative pronoun remains available for merge, but its spellout cannot be overwritten.
>
> 2 The free relative pronoun can satisfy also the case requirement of the main clause if:
>
>   (a) The required case feature is available in the syntactic structure of the free relative pronoun.
>
>   or
>
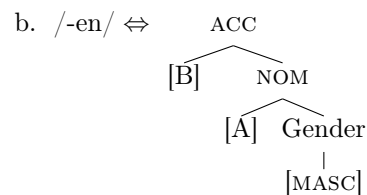>   (b) Additional syntactic structure is added without changing the spellout of the free relative pronoun.

4.1   Matching cases

(26)   Ich lade ein [⟦wen⟧   auch Maria mag].
       I   invite$_{acc}$ who$_{ACC}$ also Maria likes$_{acc}$.

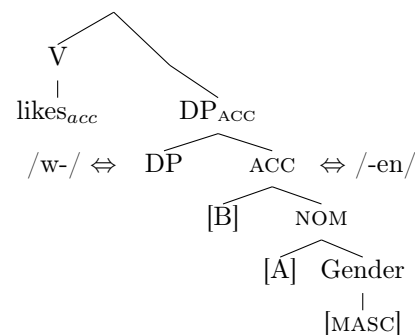   'I invite whoever Maria also likes.'   (Vogel 2001, p. 344)

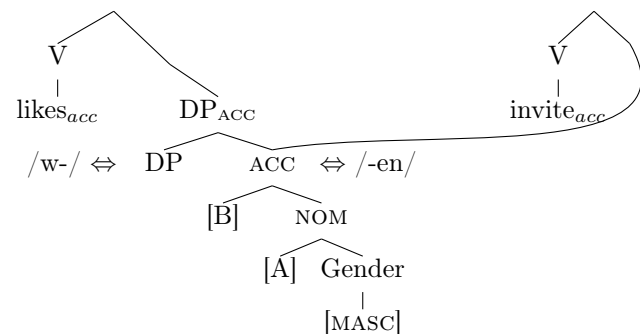The following lexical entries are required.

(27)   a. /w-/ ⇔ DP

b. /-en/ ⇔ ACC
             [B]   NOM
              [A] Gender
                    [MASC]

- The embedded clause is created first.

- *Mag* 'likes' requires its object to be in accusative.

- *w*- and -*en* are inserted.

(28)

- The main clause is created next.

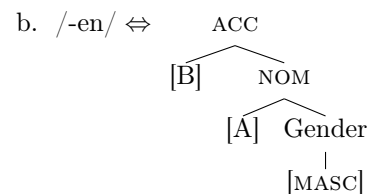- *Lade ein* 'invite' requires its object to be in accusative too.

(29)

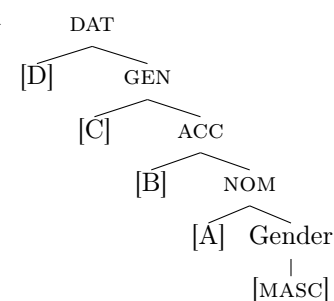> The required case feature is available in the syntactic structure of the free relative pronoun. ✓

4.2   Non-matching cases with distinct forms

The following lexical entries are required.

(30)   a. /w-/ ⇔ DP

b. /-en/ ⇔ ACC
            [B]   NOM
             [A] Gender
                [MASC]

c. /-em/ ⇔ DAT
            [D]   GEN
             [C]   ACC
               [B]   NOM
                 [A] Gender
                    [MASC]

4.2.1   More complex case in the embedded clause

(31)   a. * Ich lade ein [wen   auch Maria vertraut].
         I   invite$_{acc}$ who$_{ACC}$ also Maria trusts$_{dat}$.

'I invite whoever Maria also trusts.'   (Vogel 2001, p. 344)
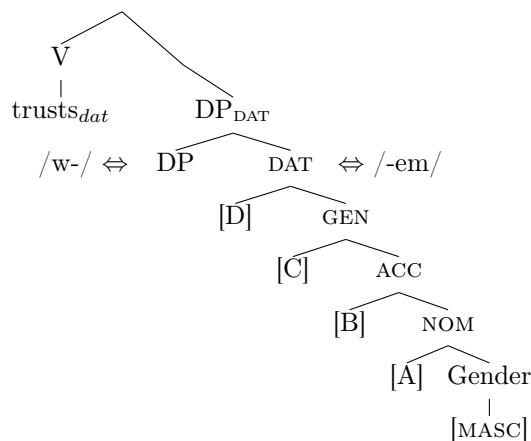
b. Ich lade ein [wem   auch Maria vertraut].
       I   invite$_{acc}$ who$_{DAT}$ also Maria trusts$_{dat}$.

'I invite whoever Maria also trusts.'   (Vogel 2001, p. 344)

- The embedded clause is created first.

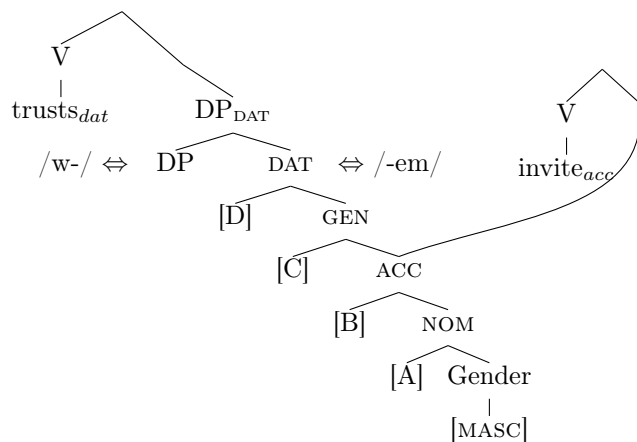- *Vertraut* 'trusts' requires its object to be in dative.

- *w-* and *-em* are inserted.

(32)


```
        V
        |
    trusts_dat    DP_DAT
  /w-/ ⇔  DP      DAT  ⇔ /-em/
             [D]      GEN
                [C]      ACC
                   [B]      NOM
                      [A]  Gender
                             |
                           [MASC]
```

- The main clause is created next.

- *Lade ein* 'invite' requires its object to be in accusative.
  Accusative is contained in dative.

(33)


```
        V
        |
    trusts_dat    DP_DAT                  V
  /w-/ ⇔  DP      DAT  ⇔ /-em/         invite_acc
             [D]      GEN
                [C]      ACC
                   [B]      NOM
                      [A]  Gender
                             |
                           [MASC]
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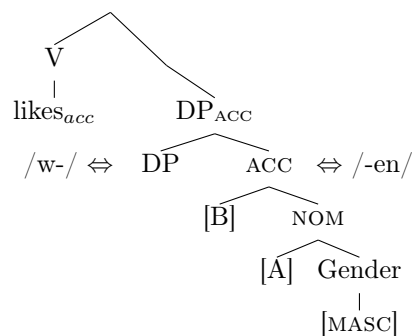

The required case feature is available in the syntactic structure of the free relative pronoun. ✓

4.2.2   More complex case in the main clause

(34)   * Ich vertraue [wen / wem auch Maria mag].
         I   trust_dat   who_DAT/ who_DAT also Maria likes_acc.

'I trust whoever Maria also likes.'   (Vogel 2001, p. 345)

- The embedded clause is created first.

- *Mag* 'likes' requires its object to be in accusative.

- *w-* and *-en* are inserted.

(35)


```
        V
        |
    likes_acc    DP_ACC
  /w-/ ⇔  DP      ACC  ⇔ /-en/
             [B]      NOM
                [A]  Gender
                       |
                     [MASC]
```

- The main clause is created next.

- *Vertraut* 'trusts' requires its object to be in accusative.
  Dative is contained not contained in accusative.

- Additional syntactic structure needs to be added.

- The spellout of this additional structure would change the spellout of the free relative pronoun. The dative masculine in German has a different spellout from the accusative masculine (*-em* and *-en*).
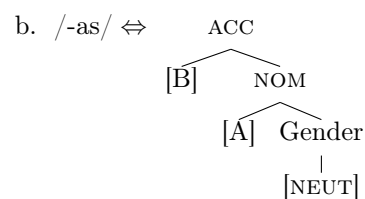
(36)
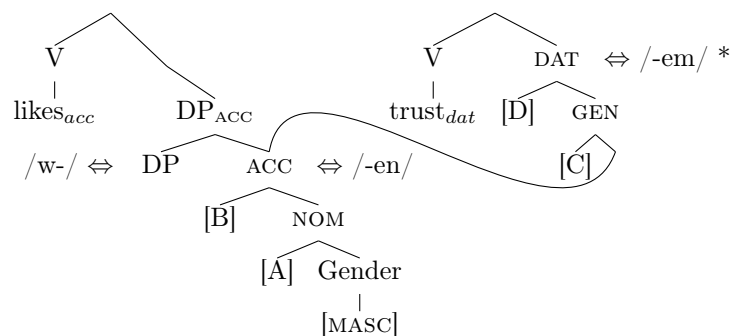
- The required case feature is available in the syntactic structure of the free relative pronoun. *****
- Additional syntactic structure is added without changing the spellout of the free relative pronoun. *****

4.3   Non-matching cases with syncretic forms

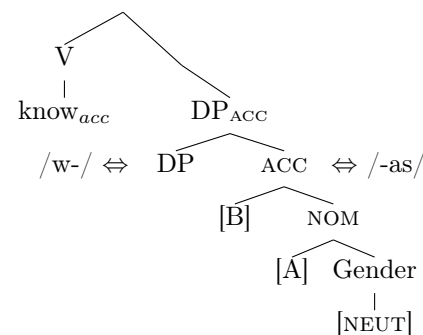The following lexical entries are required.

(37)   a. /w-/ ⇔ DP   b. /-as/ ⇔

4.3.1   More complex case in the embedded clause

(38)   [Was   ich nicht weiß],   macht   mich nicht heiß.
       What$_{\text{NOM/ACC}}$ I   not   know$_{acc}$ makes$_{nom}$ me   not   hot

       'What I don't know doesn't excite me.'   (Vogel 2001, p. 363)

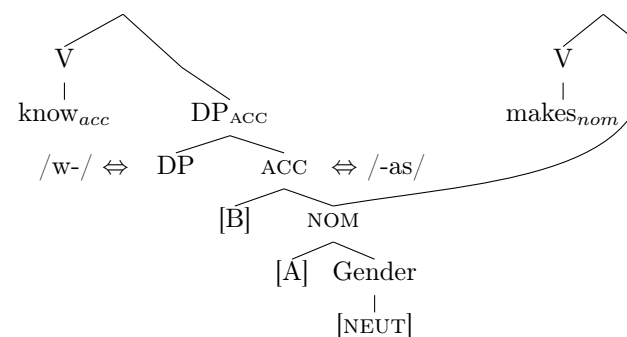- The embedded clause is created first.

- *Weiß* 'know' requires its object to be in accusative.

- *w-* and *-as* are inserted.

(39)

- The main clause is created next.

- *Macht* 'makes' requires its subject to be in nominative.

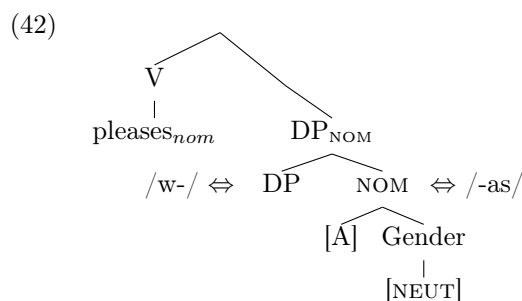 Nominative is contained in accusative.

(40)

The required case feature is available in the syntactic structure of the free relative pronoun. ✓

9

4.3.2 More complex case in the main clause

(41) Ich erzähle, [was immer mir gefällt].
I tell$_{acc}$ what$_{NOM/ACC}$ ever me pleases$_{nom}$

'I tell whatever pleases me.' (Vogel 2001, p. 344)

- The embedded clause is created first.

- *Gefällt* 'pleases' requires its subject to be in nominative.

- *w-* and *-as* are inserted.

(42)

- The main clause is created next.

- *Erzähle* 'tell' requires its object to be in accusative.

  Accusative is contained not contained in nominative.

- Additional syntactic structure needs to be added.

- The spellout of this additional structure does not affect the spellout of the free relative pronoun. The accusative neuter in German has the same spellout as the nominative neuter (*-as*).
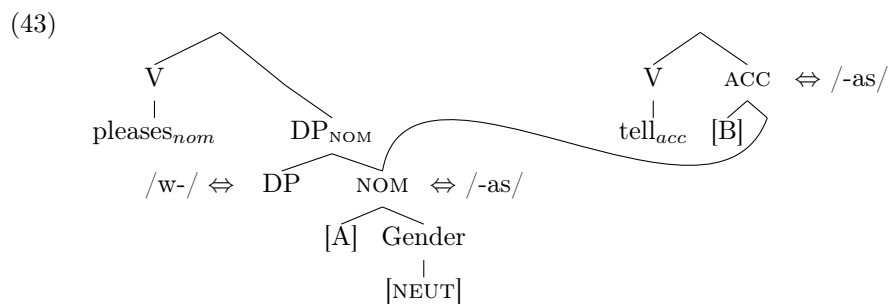
(43)

- The required case feature is available in the syntactic structure of the free relative pronoun. *****

- Additional syntactic structure is added without changing the spellout of the free relative pronoun. ✓

  → The same spellout is used for the later merged features.

5 Predictions

Proposal

1 The free relative pronoun takes the case that is required in the relative clause.

 The syntactic structure of the free relative pronoun remains available for merge, but its spellout cannot be overwritten.

2 The free relative pronoun can satisfy also the case requirement of the main clause if:

 (a) The required case feature is available in the syntactic structure of the free relative pronoun.

 or

 (b) Additional syntactic structure is added without changing the spellout of the free relative pronoun.

1 I showed: the same spellout is used for the later merged features → syncretism

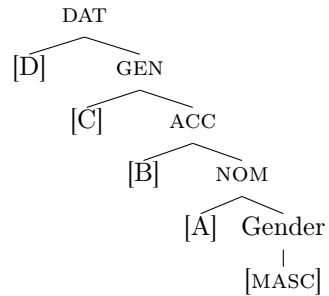2 Another option: there is a separate spellout for the later merged features → formal containment

I illustrate this with prepositions.
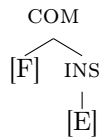
5.1   Comitative and dative

The following lexical entries are required.

(44)   a.   /w-/ ⇔ DP

b.   /-em/ ⇔   DAT
```
          DAT
       [D]    GEN
           [C]    ACC
               [B]    NOM
                   [A]   Gender
                          |
                       [MASC]
```

c.   /mit/ ⇔   COM
```
        COM
     [F]   INS
            |
           [E]
```

5.1.1   More complex case in the embedded clause

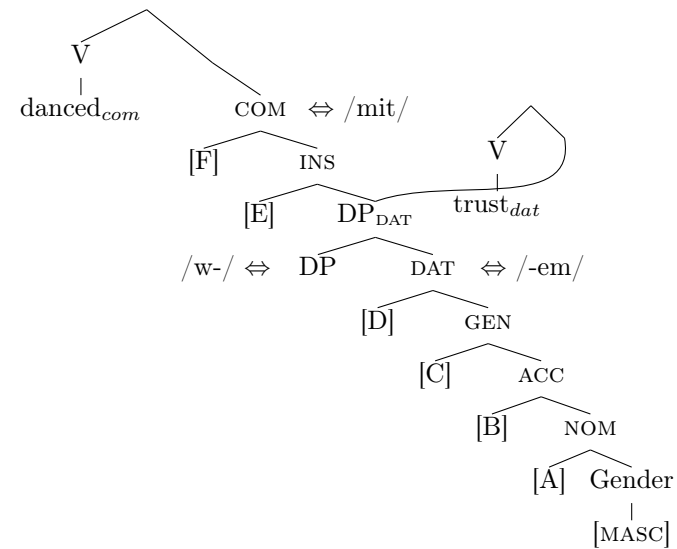(45)   Ich vertraue [│ mit wem │   du   tanzt].
       I   trust$_{dat}$ with who$_{DAT}$ you dance$_{com}$

'I trust whoever you dance with.'

---

1 *Mit wem* 'with who$_{dat}$' is inserted in the embedded clause.

2 Main clause:

(a) The required case feature is available in the syntactic structure of
     the free relative pronoun. ✓
   Dative is contained in comitative.

---

(46)

(47)

11
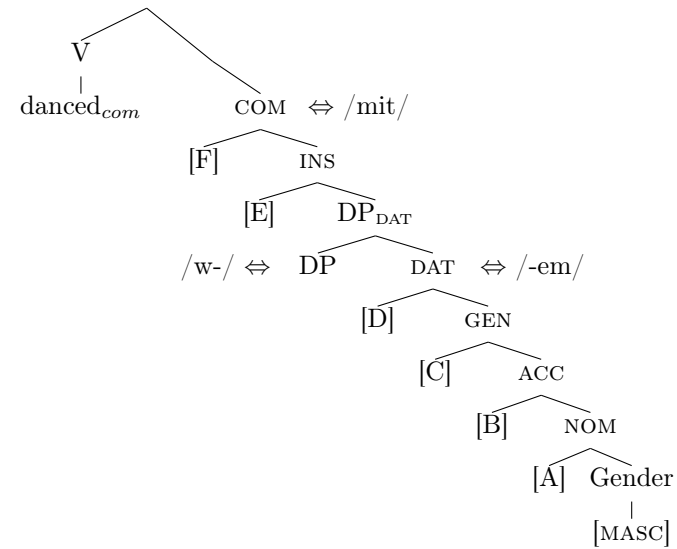
5.1.2 More complex case in the main clause

(48) Ich tanze | mit | [| wem | du vertraust].
I dance$_{com}$ with who$_{DAT}$ you trust$_{dat}$

'I dance with whoever you trust.'

---

1 *Wem* 'who$_{dat}$' is inserted in the embedded clause.

2 Main clause:

(a) The required case feature is available in the syntactic structure of the free relative pronoun. *****

(b) Additional syntactic structure is added without changing the spell-out of the free relative pronoun. **✓**

Comitative has its separate spellout: *mit* 'with'.

---

(49)

(50)
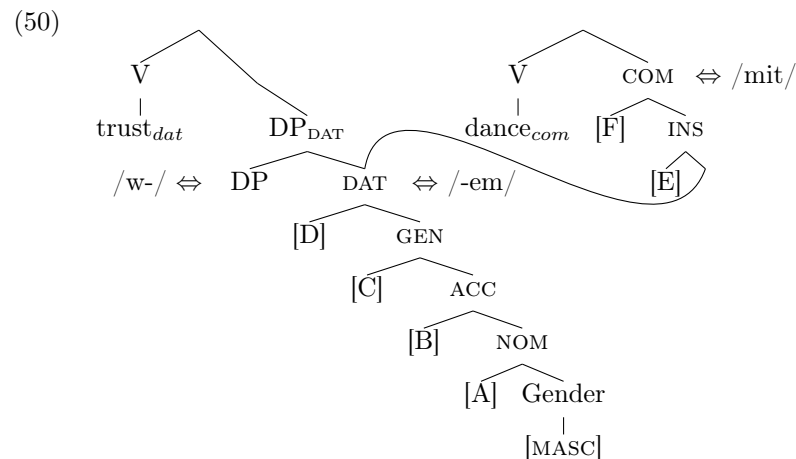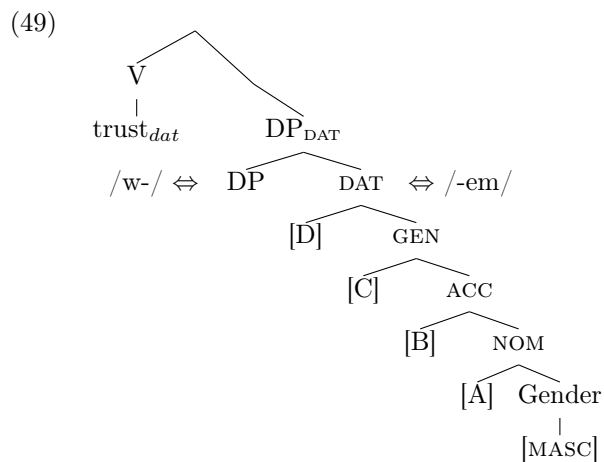
5.2 Comitative and accusative

- Following this logic, it is also predicted that the combination of comitative and accusative, with comitative in the main clause, is ungrammatical in German: the preposition combines with the dative and the accusative should be overwritten.

- I will show that in Dutch, however, it is grammatical, because the preposition combines with the accusative, i.e. the DP only moves as high as above the accusative.

5.2.1 German

(51) * 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.'

1 *Wen* 'who$_{acc}$' is inserted in the embedded clause.

2 Main clause:

   (a) The required case feature is available in the syntactic structure of the free relative pronoun. *****

   (b) Additional syntactic structure is added without changing the spell-out of the free relative pronoun. *****

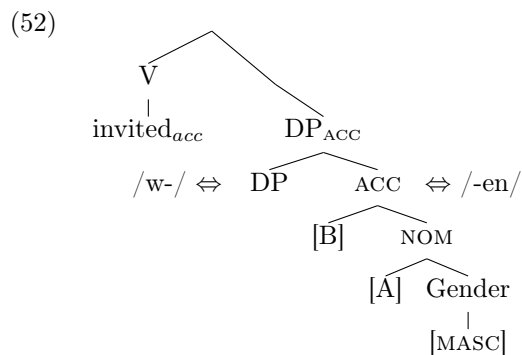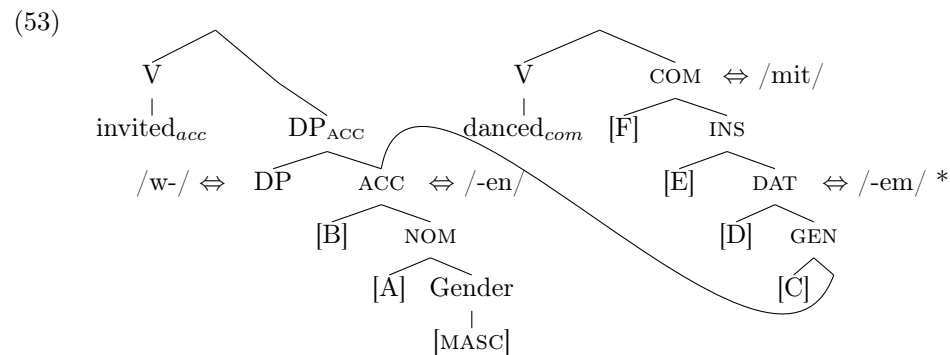   Comitative has its separate spellout: *mit* 'with', but *wem* 'who$_{dat}$' has to be inserted to spell out the dative.

(53)

5.2.2 Dutch

(54) Ik danste   met [wie   jij gisteren zag].
     I   danced$_{com}$ with who$_{ACC}$ you yesterday saw$_{acc}$

   'I dancecd with who you saw yesterday.'   (Dutch)

(52)

1 *Wie* 'who$_{acc}$' is inserted in the embedded clause.

2 Main clause:

   (a) The required case feature is available in the syntactic structure of the free relative pronoun. *****

   (b) Additional syntactic structure is added without changing the spell-out of the free relative pronoun. **✓**

      Comitative has its separate spellout: *met* 'with'.

(55)
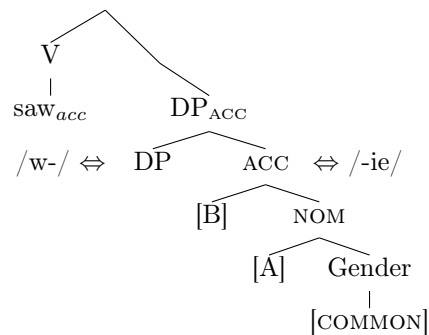
(56)
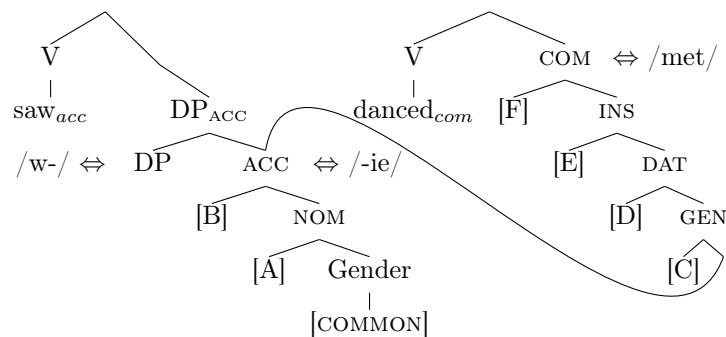
6   Previous accounts

I discuss two accounts: Himmelreich (2017) and Asarina (2011).

6.1   Himmelreich (2017)

- Himmelreich (2017) adopts an agree-based approach to account for free relatives and parasitic gaps in different languages.

- I illustrate her account with an example of non-matching cases with distinct forms and the more complex case in the embedded clause.

(57)   Ich lade ein [wem   auch Maria vertraut].
        I   invite$_{acc}$ who$_{DAT}$ also Maria trusts$_{dat}$.

'I invite whoever Maria also trusts.'   (Vogel 2001, p. 344)

- The structure contains two DP-like elements:

    ○ D$_\varnothing$ (empty element) in the main clause

    ○ FR (overt free relative) in the specCP of the embedded clause

- The structure contains two functional heads:

    ○ v assigns accusative case in the main clause (*lade ein* 'invite').

    ○ Appl assigns dative case in the embedded clause (*vertraut* 'trusts').

(58)
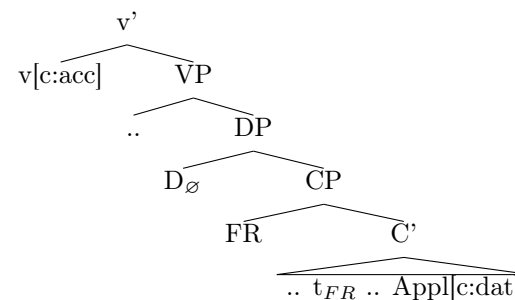
- Agree consists of two operations:

    ○ Agree-Link establishes a relation in syntax.

    ○ Agree-Copy copies case features from probe to goal in morphology.

6.1.1   Agree-Link

- Agree is bidirectional: it can go upward and downward.

- Agree can be symmetric or asymmetric:
  - Agree between $D_\varnothing$/FR and v/Appl is asymmetric:
    - $D_\varnothing$ and FR probe for v and Appl
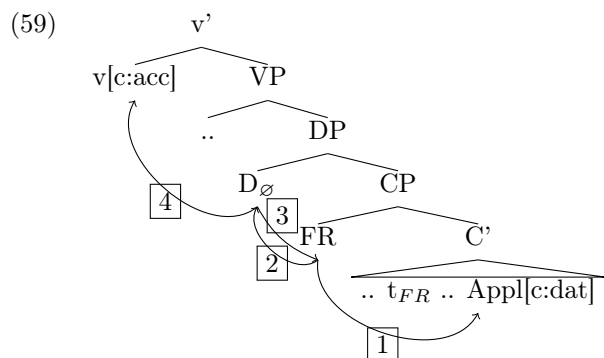 - Agree between $D_\varnothing$ and FR is symmetric:
    - FR probes for $D_\varnothing$
    - $D_\varnothing$ probes for FR

1 FR probes for $Appl_{dat}$

2 FR probes for $D_\varnothing$

3 $D_\varnothing$ probes for FR

4 $D_\varnothing$ probes for v_{acc}

(59)

6.1.2 Agree-Copy

Features are valued in the order of Agree-Link.

Conditions for matching (Himmelreich 2017, p. 63)

- Agree between a DP and a case assigning functional head F fails if both probe and goal bear case values and if the case values on the goal are a superset of the case values on the probe.

- Agree between FR and $D_\varnothing$; in a free relative fails if both bear cases and if the cases are not identical.

To account for the case hierarchy effects, Himmelreich assumes that cases are represented as features that can bear sets of case feature values, e.g. *Dative*: [c:nom,acc,dat].

(60) Derivation of (57)

probe	goal	values to be copied
FR	$Appl_{dat}$	[c:nom,acc,dat]
FR	$D_\varnothing$	-
$D_\varnothing$	FR	[c:nom,acc,dat]
$D_\varnothing$	v_{acc}	[c:nom,acc]

- This structure is grammatical, because [c:nom,acc] is not a superset of [c:nom,acc,dat].

- If the case requirements between main and embedded clause are reversed, Agree-Copy looks as follows.

(61) * Ich vertraue [wem / wen   auch Maria mag   ].
      I   trust$_{dat}$ who$_{DAT}$/ who$_{ACC}$ also Maria likes$_{acc}$.
      'I trust whoever Maria also likes.'   (Vogel 2001, p. 345)

probe	goal	values to be copied
FR	v_{acc}	[c:nom,acc]
FR	$D_\varnothing$	-
$D_\varnothing$	FR	[c:nom,acc]
$D_\varnothing$	$Appl_{dat}$	[c:nom,acc,dat]

- This structure is ungrammatical, because [c:nom,acc,dat] is a superset of [c:nom,acc].

- Syncretisms are derived via language-specific context-sensitive feature changing rules, that apply after feature copying and before vocabulary insertion.

  Rule for German: [c:acc] $\rightarrow$ [c:nom]/[g:neutr]

6.2 Asarina (2011)

- Asarina (2011) proposes an analysis for right node raising (RNR) using multidominance and feature underspecification.

- In (62), *ostavil* 'kept' requires its object to be in accusative and *nadoelo* 'sick of' requires its object to be in nominative.

(62) On ne ostavil, tak kak emu nadoelo, | bljudce | s krasnoj
he not kept$_{acc}$ as him sick of$_{nom}$ [saucer.ACC/NOM with red

kaëmkoj.
border]

'He didn't keep, as he was sick of, the saucer with a red border.' (Russian, Asarina 2011, p. 198)

- The two clauses in the RNR construction are built in parallel.

- The RNRed noun is shared by two consituents: it is the sister of both verbs.

(63)

he

kept$_{acc}$

as

sick of$_{nom}$ saucer-***ACC&NOM***
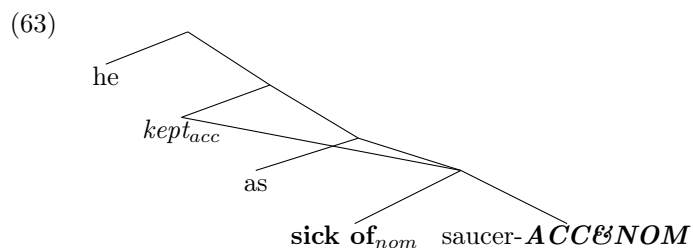
- The RNRed noun is simultaneously assigned two cases: accusative and nominative.

- When an item is assigned multiple features of the same type (e.g. case), it ends up bearing multiple feature structures.

(64) a. [CLASS Ib, NUMBER singular, CASE ACC]
      b. [CLASS Ib, NUMBER singular, CASE NOM]

Features are organized in hierarchies: an item that bears a feature in the hierarchy will also bear all the features above it.

(65)   *case*

      non-oblique oblique

      NOM   ACC   ..   ...
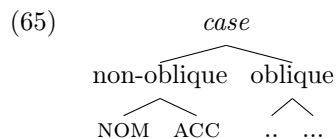
(66) a. [CLASS Ib, NUMBER singular, CASE non-oblique - ACC]
      b. [CLASS Ib, NUMBER singular, CASE non-oblique - NOM]

Lexical entries for syncretic forms are underspecified:

(67) [CLASS Ib, NUMBER singular, CASE non-oblique] → /bljudce/

- If both feature structures are spelled out by a single morphological insertion rule, a case mismatch can be resolved.

- (66a) and (66b) are spelled out as (67), and (62) is grammatical.

- As Asarina also shows, the same analysis can be applied to syncretisms in free relative constructions.

- However, the analysis cannot be extended to cases with two distinct forms which are grammatical as long as the more complex case is in the embedded clause and the more complex form for the free relative is chosen.

- German has a lexical entry *wen* for accusative masculine and *wem* for dative. There is not a single underspecified morphological insertion rule, so the derivation is predicted to crash. This prediction is incorrect.

6.3   Comparing analyses

- Covering the patterns
    - Asarina's account fails to explain one of the four patterns.
    - Himmelreich's and my account account for all four.

(68) Summary of patterns

| | more complex case | |
	embedded clause	main clause
distinct forms	✓	*
syncretism	✓	✓

- Number of syntactic positions

  - Himmelreich assumes there are two elements one of which is always null and bears the same syntactic features.
  - Asarina and I assume there is one element.

- Access to case hierarchy

  - Himmelreich and Asarina assume that structure in case becomes available in morphology.
  - In my account there is no need for separate morpoholoy component, as case is part of the syntactic structure.

- Unification of hierarchy effects and syncretisms

  - Asarina cannot account for hierarchy effects.
  - Himmelreich has two different mechanisms
    - ◇ Hierarchy effects: the less complex case is a subset (or superset) of the more complex case.
    - ◇ Syncretisms: there are language-specific context-sensitive feature changing rules. → no restrictions
  - I adopt a single mechanism
    - ◇ Hierarchy effects: the less complex case is (or is not) available in the syntactic structure of the more complex case.
    - ◇ Syncretisms: contiguous nodes are spelled out by a single lexical entry.

7 Conclusion

Two observations

1 Syncretisms resolve feature mismatches

2 Mismatches are resolved if the more complex case is required in the embedded clause (NOM < ACC < GEN < DAT < …)

Proposal

1 The free relative pronoun takes the case that is required in the relative clause.

  The syntactic structure of the free relative pronoun remains available for merge, but its spellout cannot be overwritten.

2 The free relative pronoun can satisfy also the case requirement of the main clause if:

  (a) The required case feature is available in the syntactic structure of the free relative pronoun.

  or

  (b) Additional syntactic structure is added without changing the spellout of the free relative pronoun.
    - The same spellout is used for the later merged features → syncretism
    - There is a separate spellout for the later merged features → formal containment

---

1 Further evidence that case is internally complex

2 Further evidence that syntactic structure can be shared

3 In certain contexts, syntactic structure remains visible, while spellout cannot be overwritten (cf. the Morph Integrity Hypothesis of Bermúdez-Otero 2012)

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Appendix I: More German free relatives

(69) Distinct forms with the more complex case in the embedded clause

    a. Uns besucht [wen/*wer   Maria mag   ].
       Us visits$_{nom}$ who$_{ACC}$/who$_{NOM}$ Maria likes$_{acc}$
       'Who visits us likes Maria likes.'   (Vogel 2001, p. 344)

    b. Uns besucht [wessen/*wer   Maria sich erfreuen   würde].
       Us visits$_{nom}$ who$_{GEN}$/who$_{NOM}$ Maria self be happy$_{gen}$ would
       'Who visits us, Maria would be happy about'   (Vogel 2001, p. 344)

    c. Uns besucht [wem/*wer   Maria vertraut].
       Us visits$_{nom}$ who$_{DAT}$/who$_{NOM}$ Maria trusts$_{dat}$
       'Who visits us, Maria trusts.'   (Vogel 2001, p. 343)

    d. Ich lade ein, [wessen/*wen   sich auch Maria erfreuen
       I   invite$_{acc}$ who$_{GEN}$/who$_{ACC}$ self also Maria be happy$_{gen}$
       würde].
       would.
       'I invite whoever also Maria would be happy to meet.' (Vogel 2001, p. 344)

    e. Bodo entledigt sich, [*/?wem/*wessen immer Gerhard
       Bodo rids$_{gen}$ self   who$_{DAT}$/who$_{GEN}$ ever   Gerhard
       misstraut   ].
       mistrusts$_{dat}$
       'Bodo gets rid of whoever Gerhard mistrusts.'   (Vogel 2001, p. 345)

(70) Distinct forms with the more complex case in the embedded clause

    a. *Ich lade ein, [wen/wer   mir sympathisch ist   ].
       I   invite$_{acc}$ who$_{ACC}$/who$_{NOM}$ me nice   is$_{nom}$
       'I invite who I like.'   (Vogel 2001, p. 344)

    b. *Bodo entledigt sich, [wessen/wer   immer andere Ansichten
       Bodo rids$_{gen}$ self   who$_{GEN}$/who$_{NOM}$ ever   other   opinions
       hat   als er].
       has$_{nom}$ than he
       'Bodo gets rid of whoever has different opinions than he.' (Vogel 2001, p. 345)

    c. *Ich vertraue, [wem/wer   Hitchcock mag   ].
       I   trust$_{dat}$ who$_{DAT}$/who$_{NOM}$ Hitchcock likes$_{nom}$

       'I trust who likes Hitchcock.'   (Vogel 2001, p. 345)

    d. *Bodo entledigt sich, [wessen/wen   immer Henkel nicht
       Bodo rids$_{gen}$ self   who$_{GEN}$/who$_{ACC}$ ever   Henkel not
       mag   ].
       likes$_{acc}$
       'Bodo gets rid of whoever Henkel does not like.' (Vogel 2001, p. 345)

    e. *Maria hilft, [wem/wessen   andere sich entledigen
       Maria helps$_{dat}$ who$_{DAT}$/who$_{GEN}$ others self rid$_{gen}$
       möchten].
       want
       'Maria helps whoever others want to get rid of.' (Vogel 2001, p. 345)

Appendix II: Evidence case hierarchy

(71) Transparent case containment

    a. Kalderas (Romani Smith et al. 2018, p. 10 after Boretzky 1994, pp. 31-46)

NOM	ACC	DAT	...
phral	phral-**és**	phral-**és**-kə	'brother'
phral-(á)	phral-**én**	phral-**én**-gə	'brothers'
ralk-í	ralk-**já**	ralk-**já**-kə	'girl'
ralk-já	ralk-já-**n**	ralk-já-**n**-gə	'girls'

    b. Khanty (Smith et al. 2018, p. 10 after Nikolaeva 1999, p. 16)

	NOM	ACC	DAT
1SG	ma	ma:-**ne:m**	ma:-**ne:m**-na
3SG	luw	luw-**e:l**	luw-**e:l**-na
1PL	muŋ	muŋ-**e:w**	muŋ-**e:w**-na

Appendix III: Free relatives in other languages

(72) a. Kogo   ja iskal,   ne bylo doma.
       who.ACC/GEN I sought$_{acc}$ not was$_{gen}$ home
       'Who I was looking for wasn't at home.'

    b. *Cego   ja iska,   ne bylo doma.
       what.GEN I sought$_{acc}$ not was$_{gen}$ home
       'What I was looking for wasn't at home.'

c. *Cto   ja iskal,   ne bylo   doma.
   what.ACC I sought$_{acc}$ not was$_{gen}$ home
   'What I was looking for wasn't at home.'   (Russian, Levy and
   Pollard 2002, p. 222)

(73) a. Šte celuna kojto   dojde   prâv.
         will kiss$_{acc}$ who.NOM/ACC comes$_{nom}$ first
         'I will kiss whoever comes first.'

      b. *Šte celuna kogoto   dojde   prâv.
         will kiss$_{acc}$ who.ACC comes$_{nom}$ first
         'I will kiss whoever comes first.' (conversational Bulgarian, Izvorski
         1997, p. 279)

Appendix IV: Prepositions as obligatory arguments

(74) a. Ich lade ein [auf wen   sich auch Maria freuen   würde].
         I   invite$_{acc}$ on who$_{ACC}$ self also Maria be happy$_{on-case}$ would.
         'I invite whoever also Maria would be happy to meet.' (Vogel 2001,
         p. 344)

      b. Ich habe mich sehr gefreut   über   [was   er
         I   have me   very pleased$_{about-case}$ about   what$_{ACC}$ he
         zurückbrachte].
         brought back$_{acc}$.
         'I was very glad about what he brought back.'   (Groos and
         Van Riemsdijk 1981, p. 176)