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Free relatives and timing of case assignment in Moksha

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In this talk I ...

- Put forward the new data on matching requirements in Moksha free relatives;
- Show that the pattern follows from independent properties of Moksha plus one assumption about case;
- Argue that it is a reasonable assumption and conclude that the data present an evidence for it.

> Lexical cases are assigned earlier than structural cases.
> Other operations may apply between the assignment of different cases.

1 Background

- Free relative clauses are relative clauses without an overt head.

  (1) I will buy, what you are selling. (Bresnan, Grimshaw 1978)

- **Matching condition** (first suggested by Grimshaw 1977) requires the case and the category of the *wh*-element to match the case and the category of the absent head in the main clause.

  (2) Case matching: [MC ... XCASE$_{\mathbf{i}}$ ... [FR *wh* ... YCASE$_{\mathbf{i}}$ ...] ...]
  Category matching: [MC ... X ... [**Z**P *head*], [FR [**Z**P *wh*] ... Y ...] ...]

- It explains ungrammaticality of example (3), where categorial matching is violated, and example (4) from German, where case matching is violated.

  (3) *I'll reread on whatever paper John has worked. (Bresnan, Grimshaw 1978)

  (4) Hans vertraut, *wen / *wem Maria mag.
  Hans trusts who.ACC who.DAT Maria likes
  'Hans trusts whoever Maria likes.' (Vogel 2001)

- There are some well-known cases of mismatches in free relatives, which don't result in ungrammaticality: (5) from German or (6) from Bulgarian.

  (5) Hans mag, *wen / wem Maria vertraut.
  Hans likes who.ACC who.DAT Maria trusts
  'Hans likes whoever Maria trusts.' (Vogel 2001)

  (6) S kogoto govoriš, pečeli sâstezanieto.
  with whom speak.2SG wins the.race
  'Whoever you speak with wins the race.' (Izvorski 1997)

- Grammaticality of non-matching free relatives didn't lead to the rejection of the matching condition, but to attempts to explain cases of mismatching by some other processes happening in the language.
  - **Case Hierarchy** (Grosu 1994, Vogel 2001, Himmelreich 2017): The case assigned within the relative clause is more marked (= has more features) than the case from the main clause, all the features of the case value assigned in the main clause are contained within the case value assigned in the relative clause. Thus, there is no conflict in features.
  - **Left-dislocation** (Izvorski 1997): A relative clause is a left-dislocated CP and there is *pro* in the main clause, i.e. the relevant structure is the not the one, 'real' free relatives have.

2 Data

2.1 Free relatives

- 'Regular' headed relative clauses in Moksha follow the head noun and have the relative pronoun on the left periphery of the clause, as in example (7).

(7) mon rama-jnʲə kʲniga-tʲ, [kona-nʲ maksʲ-itʲ
I buy-PST.3.O.1SG.S book-GEN which-GEN give.IPFV-PST.3.O.2SG.S
tʲɛjə-nʲ luv-əm-s]
PRON.DAT-1SG.POSS read-INF-ILL
'I bought the one that you used to give me for reading.'

- Example of free relative in Moksha is presented in (8). (8a) shows that either a special relative pronoun or an interrogative pronoun (kijə 'who' or mezʲə 'what') may be used. All further examples use interrogative pronouns.

(8) a. mon rama-jnʲə, [kona-nʲ / mezʲə-nʲ maksʲ-itʲ
I buy-PST.3.O.1SG.S which-GEN what-GEN give.IPFV-PST.3.O.2SG.S
tʲɛjə-nʲ luv-əm-s]
PRON.DAT-1SG.POSS read-INF-ILL
'I bought the one that you used to give me for reading.'

b. tʲat maksʲ-ə vajgɛlʲ-cʲə-nʲ, [kinʲ inksə sʲembə
PROH.IMP.SG give.IPFV-CN voice-2SG.POSS.SG-GEN who.OBL for.IN all
maksʲə-sʲ-tʲ vajgɛlʲ-snə-n]
give.IPFV-NPST.3-PL voice-3POSS.PL-GEN
'Do not vote for those, for whom everybody votes.'

c. šobdava, [kona / kijə erʲɛ-j sasʲədnʲɛj kutʲ-tʲ esə], sa-sʲ
morning which who live-NPST.3SG next_door house-DEF.SG.GEN in.IN come-PST.3SG
'The person, who lives next door, arrived in the morning.'

2.2 Case system

- Nouns is Moksha are marked for case, definiteness, possessivity and number.
- The marking is not agglutinative and is traditionally described by declension types.
- 3 case forms are distinguished in the definite declension type and 15 cases in the indefinite one.
- If a native speaker wants to combine definiteness with one of the cases that doesn't have a form in the definite declension, usually a postpositional phrase is used:

(9) a. mon pelʲ-an pinʲ-də
I fear-NPST.1SG dog-ABL

I am afraid of dogs.

b. mon pelʲ-an sʲɛ pinʲ-tʲ ezdə
I fear-NPST.1SG that dog-GEN in.ABL
I am afraid of that dog.

- The part of the nominal paradigm is given in Table 1 below.

Table 1: Part of the nominal paradigm in Moksha

	Indefinite declension		Definite declension	
	SG	PL	SG	PL
nominative	velʲə village	velʲə-t √-PL	velʲə-sʲ √-DEF.SG	velʲə-tʲnʲə √-DEF.PL
genitive	velʲə-nʲ √-GEN		velʲə-tʲ √-DEF.SG.GEN	velʲə-tʲnʲə-nʲ √-DEF.PL-GEN
dative	velʲə-nʲdʲi √-DAT		velʲə-tʲi √-DEF.SG.DAT	velʲə-tʲnʲə-nʲdʲi √-DEF.PL-DAT
ablative	velʲə-də √-ABL			
inessive	velʲə-sə √-IN			
elative	velʲə-stə √-EL			

- Genitive marks both possessors (and some other adnominal modifiers) and direct objects:

(10) a. tʲɛ ava-tʲ kud-əc
this woman-DEF.SG.GEN house-3SG.POSS.SG
'that woman's house'

b. mon nɛj-inʲə tʲɛ ava-tʲ
I see-PST-3.O-1SG.S this woman-DEF.SG.GEN
'I see that woman.'

- Moksha has differential object marking. Direct objects are either marked with genitive case or unmarked. Case marking also correlates with the verb agreement.

(11) a. mon nʲɛj-sa knʲiga-tʲ / *knʲiga
I see-NPST.3.O.SG.1SG.S book-DEF.SG.GEN book
'I see the book.'

b. mon nʲɛj-an knʲiga / *knʲiga-tʲ
I see-NPST.1SG book book-DEF.SG.GEN
'I see a book.'

2.3 Matching effects

- If **nominative** is the case from the main clause, free relatives are grammatical independently of the case of the relative pronoun.

(12) NOM in the main clause, DAT in the relative clause
sas'edn'ɛj kut'-t' esə er'ɛ-j, [ki-n'd'i Kat'ɛ maks-əz'ə
neighbor house-DEF.SG.GEN in.IN live-NPST.3SG who-DAT Katja give-PST.3SG.S.3SG.O
kn'iga-nzə-n]
book-3SG.POSS.PL-GEN
'Next door lives the person, whom Katja gave her books.'

(13) NOM in the main clause, ABL in the relative clause
[ki-də mon pel'-an], dvor-sə ašč-i
who-ABL I fear-NPST.1SG courtyard-IN be-NPST.3SG
'On the courtyard lies (the one), whom I fear.'

(14) NOM in the main clause, IN in the relative clause
tosa ašč-i, [mej-sə mon mol'-an modəmar'-ən' targ-əma]
there be-NPST.3SG what-IN I go-NPST.1SG potato-GEN dig-NZR
'There lies the thing, in which I will dig potapos.'

(15) NOM in the main clause, PostP in the relative clause
kurək sa-j, [ki-n' mar̥tə min' is'ak jaka-mə kino-s]
soon come-NPST.3SG who-GEN with we yesterday go-PST.1PL cimena-ILL
'The person, with whom we went to the movies yesterday, comes soon.'

- All mismatches are also allowed with **genitive** in the main clause.
- The case of an absent direct object is clear from the object agreement on the verb.

(16) GEN in the main clause, NOM in the relative clause
ton kal'gn'š-n'ə-sak, [kijə er'ɛ-j sas'ədn'ɛj kucə]
you deceive-IPFV-NPST.3.O.SG.2SG.S who live-NPST.3SG next_door house.IN
'You are deceiving the person, who lives next door.'

(17) GEN in the main clause, DAT in the relative clause
mon n'ɛj-sa, [ki-n'd'i maks-in'ə kn'iga-t']
I see-NPST.3.O.SG.1SG.S who-DAT give-PST.3.O.1SG.S book-DEF.SG.GEN
'I see the person, whom I gave the book.'

(18) GEN in the main clause, PostP in the relative clause
n'ɛj-sa, [ki'-n' ezdə pel'-an]
see-NPST.3SG.O.1SG.S who-GEN in.ABL afraid_of-NPST.1SG
'I see the one that I am afraid of.'

- If the case from the main clause is **dative**, the mismatches are allowed only in some cases.
- If the *wh*-pronoun is marked for nominative (19) or genitive (20), sentences are grammatical despite the non-matching. Mismatches are ungrammatical for other cases.

(19) DAT in the main clause, NOM in the relative clause
Kat'ɛ maks-əz'ə kn'iga-nc, [kijə er'ɛ-j sas'ədn'ɛj
Katja give-PST.3SG.S.3SG.O book-3SG.POSS.SG.GEN who live-NPST.3SG next_door
kut'-t' esə]
house-DEF.SG.GEN in.IN
'Katja gave her book to the person, who lives next door.'

(20) DAT in the main clause, GEN in the relative clause

Kat'ɛ kn'iga-nc maks-əz'ə, [kin' mon n'ɛj-in'ə
Katja book-3SG.POSS.SG.GEN give-PST.3SG.S.3SG.O who.OBL I see-PST.3.O.1SG.S
is'ak]
yesterday
'Katja gave her book to the person, whom I met.'

(21) DAT in the main clause, ABL in the relative clause
*mon' ava-z'ə maksi jaŗcəmb'ɛl'-t', [ki-də mon
I.OBL wife-1SG.POSS.SG give.NPST.3SG.S.3SG.O food-DEF.SG.GEN who.ABL I
pel'-an]
be_afraid-NPST.1SG
'My wife gives food to the one, whom I am afraid of.'

(22) DAT in the main clause, IN in the relative clause
*urdaz-s' pec', [mej-səmon jaka-si modamar'-ən' targə-ma]
mud-DEF.SG adhere.PST.3SG what-IN I go-NPST.3SG.S.3SG.O potato-GEN dig-NZR
'The mud adheres to the dress in which I am going to dig potatos.'

(23) DAT in the main clause, PostP in the relative clause
*urdaz-s' pec', [mej-t' esə mon jaka-si
mud-DEF.SG adhere.PST.3SG what-DEF.SG.GEN in.IN I go-NPST.3SG.S.3SG.O
modamar'-ən' targə-ma]
potato-GEN dig-NZR
'The mud adheres to the dress in which I am going to dig potatos.'

- Strict matching required in all **oblique** cases.

(24) ABL in the main clause, DAT in the relative clause
*mon pel'-an, [ki-n'd'i ava-z'ə maks'-i jaŗca-ma]
I be_afraid-NPST.1SG who-DAT wife-1SG.POSS.SG give-NPST.3SG eat-NZR
'I am afraid of the one, whom my wife gives food.'

(25) EL in the main clause, NOM in the relative clause
*mon tu-n', [mez'ə pɛk ičkaz'ə]
I go-PST.1SG what very far
'I leaved the place that is very far away.'

(26) PostP in the main clause, NOM in the relative clause
*mon vas'əd'-ən', [kijə koŗta-j japonkɛj-ks]
I meet-PST.1SG who speak-NPST.3SG Japanese-TRANS
'I met with the one, who speaks Japanese.'

- The *wh*-word is always marked for the case assigned in the relative clause.

(27) NOM in the main clause, IN in the relative clause
tosa ašč-i, [mej-sə / *mejə mon mol'-an modəmar'-ən' targ-əma]
there be-NPST.3SG what-IN what I go-NPST.1SG potato-GEN dig-NZR
'There lies the thing, in which I will dig potapos.'

(28) GEN in the main clause, NOM in the relative clause
ton kal'gn'š-n'ə-sak, [kijə / *kin' er'ɛ-j sas'ədn'ɛj kucə]
you deceive-IPFV-NPST.3.O.SG.2SG.S who who.GEN live-NPST.3SG next_door house.IN
'You are deceiving the person, who lives next door.'

(29) ABL in the main clause, DAT in the relative clause

*mon pel'-an, [ki-n'd'i / *ki-də ava-z'ə maks'-i
I be_afraid-NPST.1SG who-DAT who-ABL wife-1SG.POSS.SG give-NPST.3SG
jarcə̥-ma]
eat-NZR
'I am afraid of the one, whom my wife gives food.'

Table 2: (Mis-)matching in Moksha free relatives: Summary

Case assigned in the relative clause	**Case assigned in the main clause**					
	NOM	GEN	DAT	ABL	Loc.	PostP
NOM	OK	OK	OK	*	*	*
GEN	OK	OK	OK	*	*	*
DAT	OK	OK	OK	*	*	*
ABL	OK	OK	*	OK	*	*
Loc.	OK	OK	*	*	* – different OK – same	*
PostP	OK	OK	*	*	*	* – different OK – same

2.4 Descriptive generalization

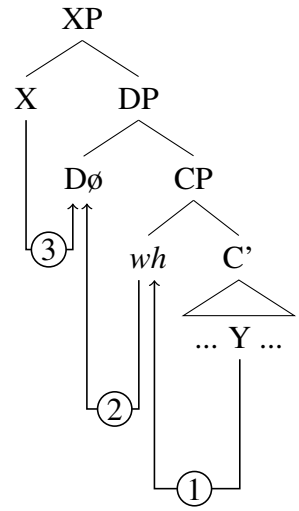
1. There are no restrictions on the case or category for the subject and the direct object free relatives.
2. Non-matching for the dative free relatives is allowed if *wh*-word is assigned a NOM, GEN or DAT.
3. Case and category matching is obligatory in all other cases.

3 Ingredients of analysis

3.1 Structure of free relatives and mechanics of matching

- Relative clause is a CP, the *wh*-word is in the Spec,CP and this CP is embedded under the null nominal head (Groos, van Riemsdijk 1981, Gračanin-Yuksek 2008, Himmelreich 2017).
- Matching condition results form the Agree operation between the null nominal head in the main clause and the *wh*-phrase (Spyropoulos 2011, Himmelreich 2017).
- The null nominal head is a Probe and searches for features of the *wh*.
- The features should not contradict each other.

(30)



① Case assignment within the relative clause
② Agree between the *wh* and nominal head
③ Case assignment within the main clause

3.2 *Pro*

- Moksha has *pro* in the subject and the direct object positions.
- The simplest evidence comes from availability of null arguments in these positions.

(31) a. soda-sa s'ɛ loman'-t'
know-NPST.3SG.O.1SG.S that person-DEF.GEN
'[I] know that person.'
b. mon n'ɛj-sa
I see-NPST.3SG.O.1SG.S
'I see [that person].'

- The diagnostic doesn't allow to compare these positions with more oblique positions, which are not obligatory in normal case.

(32) [kona ki-t' ezga min' arn'ə-tamə], s'ɛ sraft-f
which road-DEF.SG.GEN in.PROL we drive.IPFV-NPST.1PL that destroy.CAUSE-PTCP.RES
'The road we were driving on is destroyed.'

- Another piece of evidence comes from the demonstrative requirement in correlatives (Srivastav 1991).
- The correlative pronoun may be absent (=null) in the subject and the direct object positions.

(33) [kona jalga-z'ə-n'd'i t'aš-n'ə-n' s'orma-t], vandi sa-j
which friend-1SG.POSS.SG-DAT write-IPFV-PST.1SG letter-PL tomorrow come-NPST.3SG
'My friend, to whom I wrote letters, will arrive tomorrow'.

(34) [kona ki-t' ezga višk-stə pačkəd'-at oš-u], min'
which road-DEF.SG.GEN in.PROL strong-EL reach-NPST.2SG town-LAT we
mu-s'k / *min' mu-mə
find-PST.3.O.1PL.S we find-PST.1PL
'We found a road that may be used to read the town quickly'.

- The correlative pronoun is obligatory in other positions.

(35) [kona sos'əda-z'ə af suv-s'-i], mon zvon'-can
which neighbor-1SG.POSS.SG NEG enter-IPFV-NPST.3SG I call-NPST.3SG.O.1SG.S
??(s'ɛ-n'd'i)
that-DAT

‘I will call to my neighbor that didn’t came to me for [for a while].’

(36) [kona pin’ə-t’ mon vas’ft-in’ə], *(s’ɛ-n’ ezdə) pel’-an
which dog-DEF.SG.GEN I see-PST.3.O.1SG.S that-GEN in.ABL be_afraid-NPST.1SG
‘I am afraid of the dog that I saw.’

3.3 NOM, GEN, DAT

- Nominative, genitive and dative in Moksha behave unlike other case forms.
  - Definiteness is marked only in these 3 cases
  - The possessive marker precedes NOM, GEN, DAT and follows other cases

GEN	velʲə-nʲ	velʲə-tʲ
ABL	velʲə-də	

(37) velʲə-zʲə-nʲ
village-1SG.POSS-GEN

(38) velʲə-də-n
village-ABL-1SG.POSS

- Noun in NOM, GEN, DAT are DPs in Moksha, nouns in other cases are KPs (Pleshak et al. 2016).
- The mismatch between, for instance, ABL and DAT is both in case and category.
- There is no agreement about dative belonging to structural or lexical cases (cf. Woolford 2006 *vs.* Baker, Vinokurova 2010 among others).
- Similarities between dative and nominative, genitive suggest that dative is a structural case in Moksha.

3.4 Case assignment

- Dependent Case Theory (Marantz 1991):
  - Case assignment is determined by the position of the noun and presence of other nouns
  - Case assignment proceeds in the certain order.
    Lexically governed → “dependent” → unmarked → default
- I assume that in Moksha Agree between the null nominal head and *wh* happens after assignment of lexical case and before assignment of structural cases
- Order of operations: (1) Assignment of lexical cases; (2) Matching; (3) Assignment of structural cases;

3.5 Summary

1. *pro* is available only in the subject position and in the object position.
2. NOM, GEN, DAT are DPs, nouns in other cases are KPs.
3. NOM, GEN, DAT are structural cases.
4. Lexical cases are assigned before the structural cases.
5. Matching (=Agree between *wh* and null head) happens between assignment of lexical and structural cases.

4 Derivations

- Mismatches in Moksha are not a uniform phenomenon, but result from two processes.

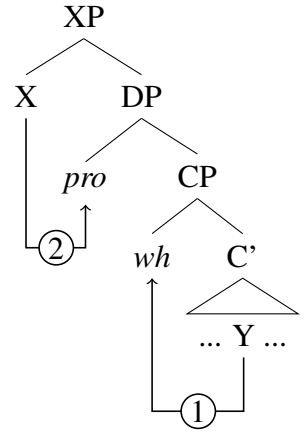
Table 3: (Mis-)matching in Moksha free relatives revised

Case assigned in the relative clause	**Case assigned in the main clause**					
	NOM	GEN	DAT	ABL	Loc.	PostP
NOM	OK	OK	OK	*	*	*
GEN	OK	OK	OK	*	*	*
DAT	OK	OK	OK	*	*	*
ABL	OK	OK	*	OK	*	*
Loc.	OK	OK	*	*	* – different OK – same	*
PostP	OK	OK	*	*	*	* – different OK – same

Within the dashed box

- Non-matching relatives in subject and direct object positions superficially look like free relatives, but in fact are headed relatives with *pro* occupying the head position.
- *Pro* fulfills the requirements of the predicate in the main clause and the matching effects don't arise as in regular headed relative clauses.

(39) GEN in the main clause, IN in the relative clause



(1) Case assignment in the relative clause
(2) Case assignment in the main clause

No Agree between *pro* and *wh*

⇓

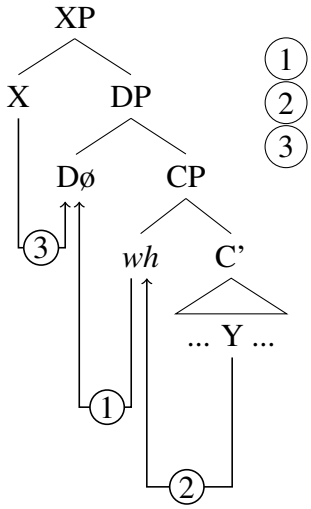
No Feature Conflict

Within the gray box

- NOM, GEN, DAT are assigned after Agree between the *wh* and the null D head.
- It implies that these cases don't appear on null D and cannot conflict with the case from the main clause.

(40) DAT in the main clause, NOM in the relative clause

head: DP DAT
wh: DP --
⇓
No Feature Conflict



1 Agree
2 Structural case
3 Case assignment in the main clause

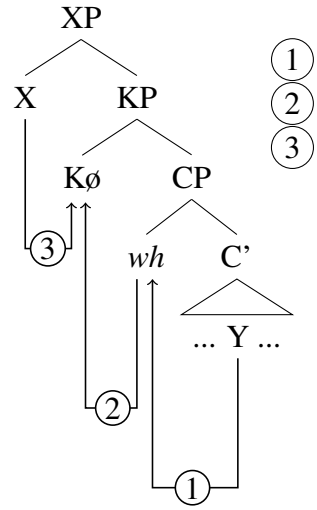
- This derivation doesn't violate the Strict Cycle Condition.
  - Assignment of the structural case affect the proper subtree of the structure,
  - but it's not a problem for the SCC,
  - because it happens after the Spell-Out, in the Morphology.

Outside of the boxes

- Even though the structural cases from the relative clause are never visible in the main clause, the system doesn't overgenerate.
- The sentences with the a structural case in the relative clause and a lexical case in the main clause are ruled out by the category matching requirement.

(41) ABL in the main clause, DAT in the relative clause

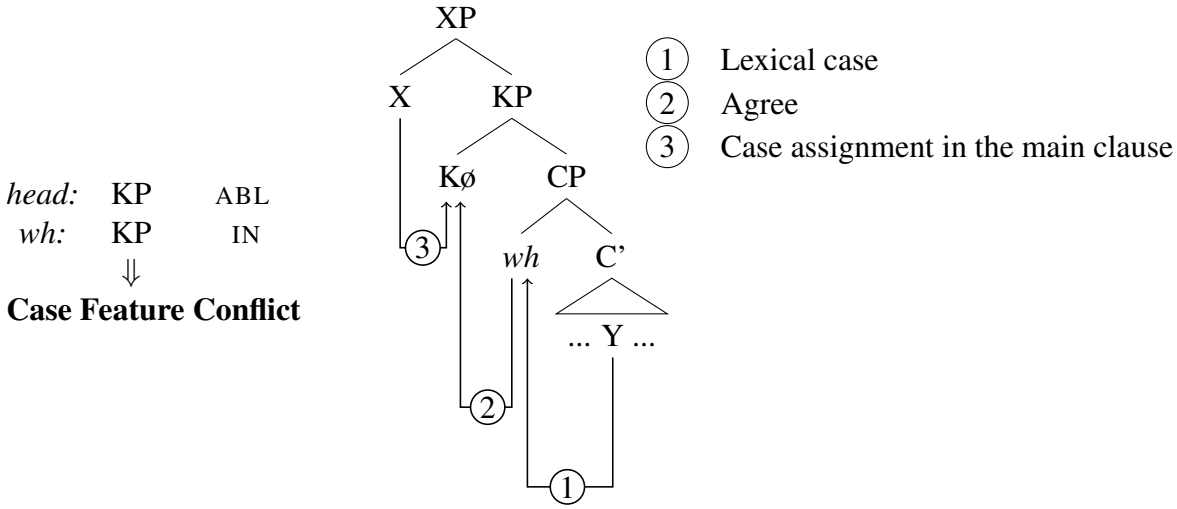
head: KP ABL
wh: DP --
⇓
Category Feature Conflict



1 Lexical case
2 Agree
3 Case assignment in the main clause

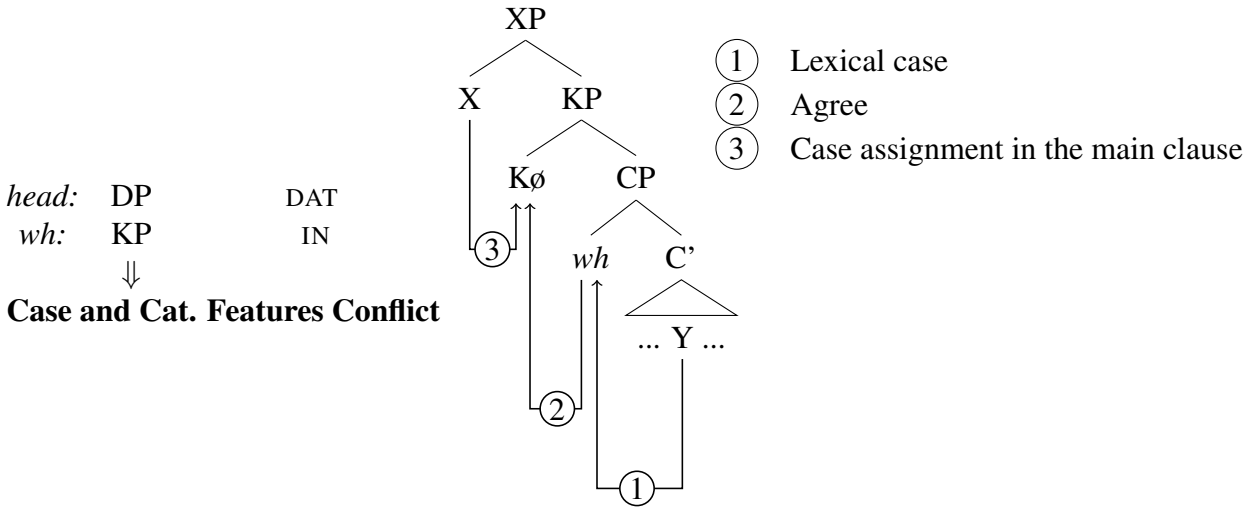
- If a lexical case is assigned in both clauses, case features contradict.

(42) ABL in the main clause, IN in the relative clause



- In other cases, both case and category matching fails.

(43) DAT in the main clause, IN in the relative clause



5 Conclusions

- Non-matching relatives without an overt head are allowed in the subject and the direct object position, but these are not free relatives. The relative clause is headed by *pro*, so that the matching condition doesn't hold.
- Mismatches are grammatical, if the case assigned in the relative clause and the case assigned in the main clause are both structural (NOM, GEN, DAT). These cases are assigned after Agree and don't participate in matching. The categories in both clauses match.
- Other combinations cause a conflict in case or category.

Theoretical significance

The idea that cases are assigned in a particular order is in the core of the Dependent Case Theory. So far, it followed rather from the theory-internal considerations, such as the Subset (Elsewhere) principle. The more marked / specific a case value is, the earlier it is assigned.

Mismatches in Moksha free relatives provide an empirical evidence for this order of operations. Other operations may apply between the assignment of different cases.

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