

# Nominal ellipsis and concord in Moksha\*

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## 1 Introduction

### Inflection under ellipsis

- In some languages modifiers generally do not show concord with the noun, but are inflected if the noun is elided:

- (1) a. [ adjective noun-**infl** ] / \*[adjective-**infl** noun-**infl** ]  
 b. [ adjective-**infl** ~~noun-**infl**~~ ] / \*[adjective ~~noun-**infl**~~ ]

*Why a modifier is inflected under ellipsis?*

### Previous research:

- The pattern is not new, see, e.g., Hungarian (Kester, 1996a; Saab & Lipták, 2016), Beserman Udmurt Arkhangelskiy & Usacheva (2018), Persian (Ghaniabadi, 2010), Turkish (Bošković & Şener, 2014), Ossetic (Hettich, 2002).
- There is a number of existing approaches (see Kester (1996a,b), Bošković & Şener (2014), Dékány (2011), Saab & Lipták (2016), Ruda (2016), Murphy (2018), and Saab (2019)).

Here I will present the original data on nominal ellipsis in Moksha Mordvin, show that the existing approaches do not cover a full range of data, and develop a new account.

### Sketch of the talk:

- In the absence of a noun, a head of a **linearly last nominal modifier** shows nominal inflection.
- Absence of a noun is an instance of **nominal ellipsis** (as opposed to a nominalization or a null noun construction).
- Nominal modifiers, in fact, differ in their ability to show nominal inflection and **the split between agreeing and non-agreeing modifiers** is determined by features of their modifiers:
  - Only nominal modifiers that have no  $\phi$ -features (person/number) of their own show nominal inflection under ellipsis.
- Inflection on nominal modifiers in Moksha is, thus, subject to the same restrictions as concord inflection in languages with regular nominal concord.
- Inflection in elliptical contexts instantiates **nominal concord** and concord is a **regular property** of Moksha nominal syntax.
  - Features are present on a nominal modifier in non-elliptical contexts as well but **remain without morphological realization**.
- Non-realization of nominal exponents follows from timing of Spell-Out and Probe Conversion – an operation that makes former probe features eligible at PF.
- Concord exponents are not realized in non-elliptical contexts because **Probe Conversion counterfeeds Spell-Out**, they receive realization under ellipsis because Spell-Out of a nominal modifier is postponed then.

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\*I am very grateful to native speakers of Moksha I worked with for their excellent linguistic intuitions and all the time they have spent with me. I also would like to thank Gereon Müller and Andrew Murphy for comments and suggestions, Maria Kholodilova and Svetlana Toldova for the discussions of the data.

## 2 Data

- Moksha belongs to the Mordvin group of Finno-Ugric languages. It is spoken in the Republic of Mordovia, Russia. The data come from my fieldwork.
- Note that genitive is the case of the direct object.

### 2.1 Nominal ellipsis

- Nouns in Moksha are inflected for **case, definiteness and number**

– Inflection is fusional, there are restrictions on which features can be expressed together (e.g., definiteness can be only marked in structural cases).

- All inflection appears on the noun:<sup>1</sup>  
adj noun-**infl** / \*adj-**infl** noun-**infl** / \*adj-**infl** noun

- (2) ravžə pin'ə-n'ə-n'd'i / \*ravžə-n'ə-n'd'i pin'ə-n'ə-n'd'i / \*ravžə-n'ə-n'd'i pin'ə  
black dog-DEF.PL-DAT black-DEF.PL-DAT dog-DEF.PL-DAT black-DEF.PL-DAT dog  
'to the black dogs'

- If the noun is elided, its **modifier is inflected for features of elided noun**:

- (3) Mon maks-ən' [kodamə bəd'ə akšə-**n'd'i**]  
I give-PST.1SG which INDEF white-DAT  
'{Context: To which cat did you give food?} I gave to a white one.'

- (4) Paka zvon'-c'ə-s' an'c'ək [kaft-**n'ə-n'd'i**].  
yet call-FREQ-PST.3[SG] only two-DEF.PL-DAT  
'{Context: My mom is calling to her friends.} By now she called only to the two [friends].'

- Exponents that appear on the nominal modifier under ellipsis can **differ from exponents on the noun** in the corresponding non-elliptical context:

- (5) a. Mon soda-sa [t'ɛ ava-**t'**].  
I know-NPST.3SG.O.1SG.S this woman-DEF.SG.GEN  
'I know this woman.'

- b. Mon soda-sa [t'ɛ-**n'**] / \*[t'ɛ-t'].  
I know-NPST.3SG.O.1SG.S this-GEN this-DEF.SG.GEN  
'{Which of these women do you know?} I know this one.'

- If there is more than one remaining modifier, **only the linearly last modifier is inflected**:

- (6) Mon and-in'ə [mazi akšə-**t'**] / \*[mazi-t' akšə] / \*[mazi-t'  
I feed-PST.3.O.1SG.S nice white-DEF.SG.GEN nice-DEF.SG.GEN white nice-DEF.SG.GEN  
akšə-t'].  
white-DEF.SG.GEN  
'{Which cat did you feed?} I fed the beautiful white one.'

- Inflection appears **on the head of a branching modifier** even if its head is not the linearly closest element to the ellipsis site.

– A participle can precede or follow its argument:

- (7) Mon rama-jn'ə  
I buy-PST.3.O.1SG.S

<sup>1</sup> If a noun phrase is in the nominative, a few native speakers allow to double number on indefinite pronouns. I will abstract away from this in what follows and leave out what this marginal option might be due to.

- a. [keluv-ən' lopa-stə **ti-f** nastojka-t']  
birch-GEN leaf-EL make-PTCP.RES liquor-DEF.SG.GEN
- b. [**ti-f** keluv-ən' lopa-stə nastojka-t'].  
make-PTCP.RES birch-GEN leaf-EL liquor-DEF.SG.GEN  
'I bought the liquor made from birch leaves.'

- If the noun is elided, morphological exponents appear on the participle rather than on its argument in both cases:

(8) Mon rama-jn'ə

I buy-PST.3.O.1SG.S

- a. [keluv-ən' lopa-stə **ti-f-t'**]  
birch-GEN leaf-EL make-PTCP.RES-DEF.SG.GEN
- b. [**ti-f-t'** keluv-ən' lopa-stə]  
make-PTCP.RES-DEF.SG.GEN birch-GEN leaf-EL
- c. \*[ti-f keluv-ən' lopa-stə-t'].  
make-PTCP.RES birch-GEN leaf-EL-DEF.SG.GEN

'{Context: Which liquor did you buy?} I bought the [liquor] made from birch leaves.'

- If the relative form modifies the elided noun directly, inflection is possible:

(9) Mon rama-jn'ə [keluv-ən' lopa-**stə-t'**].

I buy-PST.3.O.1SG.S birch-GEN leaf-EL-DEF.SG.GEN

'{Context: Which liquor did you buy?} I bought the one from birch leaves.'

<p><b>Summary:</b> Inflection is on the head of the modifier that is closest to the ellipsis site.</p>
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## 2.2 Structure in the ellipsis site?

- It is often argued for the **unpronounced syntactic structure in the ellipsis site** (see Merchant (2001), and also the recent overviews by van Craenenbroeck & Merchant (2013) and Merchant (2019)).
- Also a common assumption in the literature on nominal ellipsis (see Corver & van Koppen (2009), Alexiadou & Gengel (2012), Merchant (2014), Saab & Lipták (2016), Saab (2019)).
- Elided noun shows **connectivity effects** to the rest of the noun phrase:

1. Elided noun **can assign a  $\Theta$ -role** to its argument:

(10) Kona az-ks-stə ton muj-it' ošibka-t'?

which say-NZR-EL you find-PST.3.O.2SG.S mistake-DEF.SG.GEN?

Mon muj-in'ə [Puškən-ən' od-stə].

I find-PST.3.O.1SG.S Pushkin-GEN new-EL

'In which novel did you find a mistake? I found in the new [novel] by Pushkin.'

2. A modifier of the elided noun **can be extracted** as in non-elliptical contexts:

(11) Mon af soda-sa, **kin' kolga** Katia rama-z'ə [s'ə oc'u-t']

I NEG know-NPST.3SG.O.1SG.S who.GEN about Katja buy-PST.3SG.O.3SG.S this big-DEF.SG.GEN

'{Context: Katja bought books.} I don't know, about whom Katja bought this big one.'

3. **Idiosyncratic markings** of arguments are preserved under ellipsis:

A direct object of an atelic verb can be marked by the postposition *esə*, marking is preserved with nominalization (see Zakirova (2018)) and under ellipsis.

- (12) a. Son šuv-s t'ε **lotk-t'** esə i lotka-s'.  
she dig-PST.3[SG] this hole-DEF.SG.GEN in.IN and spot-PST.3[SG]  
'She was digging this hole and then stopped'.

(Kozlov, 2018, 423)

- b. [T'ɛ **zadača-t'**        esə kuvaka az-ən-kšn'ə-ma-s']        iz'        pomaga.  
 this task-DEF.SG.GEN in.IN long say-FREQ-FREQ-NZR-DEF.SG NEG.PST[3SG] help.CN  
 'This long explanation of the task didn't help.'
- c. [T'ɛ **zadača-t'**        esə kuvaka-s']        iz'        pomaga.  
 this task-DEF.SG.GEN in.IN long-DEF.SG NEG.PST[3SG] help.CN  
 '{Context: Did you read explanations?} The long [explanation] of this task did not help.'

**Conclusion:** Diagnostics show that the elided noun is syntactically present.

### 2.3 Restrictions on inflection

- There are two types of nominal modifiers in Moksha. Modifiers of the first type show inflection under ellipsis, while modifiers of the second type do not.
- The first type includes adjectives, numerals (see (4)), demonstratives (see (5b)), participles (see (8)), unmarked modifiers, modifiers marked for genitive of the indefinite declension, caritive, elative (see (9)), and equative.

– Adjectives

- (13) Mon maks-ən'        [kodamə bəd'ə akšə-**n'd'i**]  
 I give-PST.1SG which INDEF white-DAT  
 '{Context: To which cat did you give food?} I gave to a white one.'

– Unmarked modifiers

- (14) Pan'čf-t rama-s'        [sen'əm s'el'mə-s'].  
 flower-PL buy-PST.3[SG] blue eye-DEF.SG  
 '{Context: Which girl bought flowers?} The [girl] with blue eyes bought flowers.'

– Indefinite genitive<sup>2</sup>

- (15) Min' rama-s'k        [pona-**n'n'ə-t'**].  
 we buy-PST.3.O.3PL.S wood-GEN-DEF.SG.GEN  
 '{Context: Which hat did you buy?} We bought the woolen hat.'

– Caritive

- (16) Son maks'        [zon't'ik-**ftəmə-t'i**].  
 he give.PST.3[SG] umbrella-CAR-DEF.SG.DAT  
 '{Context: To whom did he give his coat?} He gave to the [person] without an umbrella'.

– Equative

- (17) A t'ɛd'ɛ-z'ə        n'ɛj-əz'ə        [katə-**ška-t'**].  
 but mother-1SG.POSS.SG see-PST.3SG.O.3SG.S cat-EQU-DEF.SG.GEN  
 '{Context: I saw the small rat,} and my mother saw the [rat] the size of the cat.'

- Modifiers of the second type do not show inflection under ellipsis.
- These are modifiers marked for genitive of the definite declension, dative modifiers of the definite and indefinite declension, and modifiers marked for lative.

– Genitive of definite declension

<sup>2</sup> The genitive marker in the presence of the noun is  $-(ə)n'$ , but it is  $-(ə)n'n'ə-$  before inflection of the elided noun. The geminated allomorph is used when a genitive exponent is not word-final.

- (18) Mon maks-in'ə [t'ɛ ava-t' brad-ənti] / \*[t'ɛ  
 I give-PST.3.O.1SG.S this woman-DEF.SG.GEN brother-3SG.POSS.SG.DAT this  
 ava-t'-ənti].  
 woman-DEF.SG.GEN-3SG.POSS.SG.DAT  
 ‘{Context: To whose brother did you give a book?} I gave to this woman’s’.

– Dative of definite and indefinite declension

- (19) Mon n'ɛj-sa [vir'-t'i ki-t'] / \*[vir'-t'i-t'].  
 I see-NPST.3SG.O.1SG.S forest-DEF.SG.DAT road-DEF.SG.GEN forest-DEF.SG.DAT-DEF.SG.GEN  
 ‘{Context: Which road do you see?} I see [the road] to the forest.’

- (20) Mon juma-ft-in'ə [kodamə bəd'ə s't'ər'-n'ɛ-n'd'i kaz'n'ə-t'] /  
 I disappear-CAUS-PST.3.O.1.SG.S which INDEF girl-DIM-DAT present-DEF.SG.GEN  
 \*[s't'ər'-n'ɛ-n'd'i-t'].  
 girl-DIM-DAT-DEF.SG.GEN  
 ‘{Context: Which present did you lose?} I lost [a present] for some girl.’

– Lative

- (21) Val-əz'ə [vir'-i ki-t'] / \*[vir'-i-t].  
 flood-PST.3SG.O.3SG.S forest-LAT road-DEF.SG.GEN forest-LAT-DEF.SG.GEN  
 ‘{Context: Which road is flooded?} The [road] to the forest is flooded.’

- These modifiers can still license inflection: inflection ≠ licensing of ellipsis

– Definite dative:

- (22) [T'ɛ **ava-t'**] / \*ava-t'-ət / \*ava-t'-ənzə ašč-ij'-t'  
 this woman-DEF.SG.GEN woman-DEF.SG.GEN-PL woman-DEF.SG.GEN-3SG.POSS.PL be-NPST.3-PL  
 morkš-t' lank-sə  
 tableDEF.SG.GEN on-IN  
 ‘{Context: Whose books are on the shelf? I don’t know} This woman’s [books] are on the table’.

– Lative:

- (23) Son art-əz'ə [**sportzal-u**] / \*sportzal-u-t' ravžə kraska-sə.  
 she paint-PST.3SG.O.3SG.S gym-LAT gym-LAT-DEF.SG.GEN black paint-IN  
 ‘{Context: Which door did she paint black?} She painted [the door] to the gym black.’

**Summary:** Some nominal modifier show inflection under ellipsis, while others do not.  
 Ellipsis remains possible with modifiers of the second type.

### 3 Agreeing vs. non-agreeing modifiers

*What derives the split between nominal modifiers that show inflection under ellipsis and modifiers that don't?*

#### 3.1 Generalization

- **Languages with generally overt concord** also have two types of nominal modifiers: some modifiers show agreement with the noun, others do not.
- Baker (2008) suggests that the difference between agreeing and non-agreeing modifiers results from **the presence of  $\phi$ -features**:
  - Modifiers cannot agree with another noun if they have their own  $\phi$ -features because **these features intervene and block agreement** with another noun.

- I will argue that the presence of  $\phi$ -features also underlies the ability to show inflection in elliptical contexts.

(24) **Generalization:**

A modifier is inflected under ellipsis unless it has its own  $\phi$ -features.

- Such modifiers as adjectives or numerals clearly do not have their own  $\phi$ -features, and they get inflected under ellipsis, while modifiers such as definite genitive or lative are nouns with their own  $\phi$ -features, and they cannot show inflection under ellipsis.
- Unmarked modifiers as well as modifiers marked for indefinite genitive, caritive, elative, and equative are inflected in elliptical contexts and therefore might initially look problematic for this generalization.
- I devote the rest of this section to showing that in fact they have no  $\phi$ -features of their own.

**No  $\phi$ -features: Initial observations**

- As shown in Pleshak & Kholodilova (2018), unmarked nouns also cannot be inflected for other nominal features.

(25) Son n'ej-əz'ə                      [kaftə pil'gə(\*-t) kaza-t'].  
 she see-PST.3SG.O.3SG.S two leg(-PL) goat-DEF.SG.GEN  
 'She saw the goat with two paws.'

- Unmarked nouns also cannot be modified by a demonstrative and bear a corresponding definiteness inflection; see (26).
- This suggests that unmarked nouns are **bare nouns without nominal features**.

(26) Son n'ej-əz'ə                      [(t'ε) s'en'əm sel'mə-(\*s'/\*t'n'ə)] s't'ər'-n'ε-t'.  
 she see-PST.3SG.O.3SG.S this blue eye-DEF/DEF.PL girl-DIM-DEF.SG.GEN  
 'She saw the girl with these blue eyes.'

- As for indefinite genitive, caritive, elative, and equative, I suggest that they lack  $\phi$ -features and are **attributivizers syncretic to the corresponding case affixes**.
- The peculiarity of some of these forms is reflected in grammars:
  - The case status of the caritive case is questioned in Hamari (2014).
  - Kolyadyonkov & Zavodova (1962, 189-192) and Cygankin (1980, 112) do not include indefinite genitive in the list of cases and treat it as a derivational suffix that builds adjectives.
  - Indefinite genitive can be attached to adverbs and turn them into nominal modifiers.

(27) a. Son sa-s'                      is'ak.  
 she come-PST.3[SG] yesterday  
 'She came yesterday.'

b. Son rama-z'ə                      [is'ak-ən'                      kši-t'].  
 she buy-PST.3SG.O.3SG.S yesterday-GEN bread-DEF.SG.GEN  
 'She bought yesterday's bread.'

- Similarly, the use of elative in an adnominal position is different in that it can mark cloth but such a use is ungrammatical for the elative case; see (75b).

(28) sen'əm panar-stə s't'ər'-n'ε-t'n'ə.  
 blue dress-EL girl-DIM-DEF.PL  
 'the girls in blue dresses'

(29) \*Son sa-s'                      sen'əm panar-stə.  
 She come-PST.3[SG] blue dress-EL  
 'She came in the blue dress.'

### 3.2 Non-verbal predication

- The behavior of these forms in the predicative position constitutes a main piece of empirical evidence that they lack  $\phi$ -features.
- According to the typological survey in Stassen (1992, 2005), in the predicative position adjectives tend to agree with the subject, while nouns rather do not show agreement.
- Baker (2008) draws a parallel between this tendency and restrictions on nominal concord and shows that both can be derived from the presence of  $\phi$ -features.

(30) **Prediction:** If inflection in elliptical contexts is indeed restricted by the presence of features on a nominal modifier, it should to correlate with agreement in the predicative position.

- In Moksha, adjectives in the predicative position agree with a third person subject in number (see also Kholodilova (2016) for more details).

(31) Son **jomla** / \*jomla-j.  
 he small small-NPST.3[SG]  
 ‘He is small.’

(32) S'in' **jomla-t** / \*jomla-j-t'.  
 they small-PL small-NPST.3-PL  
 ‘They are small.’

- Plural agreement is also possible if the predicative position is occupied by a bare noun, as in (33). Agreement is ruled out if the noun is marked for definiteness (see (34)) or possessivity (see (35)).

(33) S'in' učit'ə́l'-t.  
 they teacher-PL  
 ‘They are teachers.’

(34) S'in' t'ε učit'ə́l'-n'ə / \*učit'ə́l'-n'ə-t  
 they this teacher-DEF.PL teacher-DEF.PL-PL  
 ‘They are these teachers.’

(35) S'in' učit'ə́l'-ənzə / \*učit'ə́l'-ənzə-t  
 they teacher-3SG.POSS.PL teacher-3SG.POSS.PL-PL  
 ‘They are his teachers.’

- Number agreement is possible if the predicative position is occupied by the form marked for the genitive of indefinite declension, caritive, elative, or equative.

– Genitive of indefinite declension

(36) Kud-t'n'ə šuftə-**n'n'ə-t**.  
 house-DEF.PL wood-GEN-PL  
 ‘The houses are wooden.’

– Caritive

(37) T'ε kaza-t'n'ə s'ura-**ftəmə-t**.  
 this goat-DEF.PL antler-CAR-PL  
 ‘The goats are without antlers.’

– Elative

(38) T'ε nastojka-t'n'ə keluv-ən' lopa-**stə-t**.  
 this liquor-DEF.PL birch-GEN leaf-EL-PL  
 ‘These liquors are from birch leaves.’

– Equative

(39) T'ε krisa-t'n'ə katə-**ška-t**.  
 this rat-DEF.PL cat-EQU-PL  
 ‘These rats are the size of a cat.’

- Number agreement is ruled out for non-verbal predicates marked by the genitive of the definite declension, by the dative of the definite declension, by the dative of the indefinite declension, and by the lative.

– Genitive of the definite declension

- (40) Kol'ənd'əma-t'n'ə t'ε st'ər'-n'ε-t' / \*s't'ər'-n'ε-t'-t'  
toy-DEF.PL this girl-DIM-DEF.SG.GEN girl-DIM-DEF.SG.GEN-PL  
‘The toys are this girl’s.’

– Dative of the definite or the indefinite declension

- (41) Kol'ənd'əma-t'n'ə t'ε s't'ər'-n'ε-t'i / \*s't'ər'-n'ε-t'i-t.  
toy-DEF.PL this girl-DIM-DEF.SG.DAT girl-DIM-DEF.SG.DAT-PL  
‘The toys are for this girl.’

- (42) Kol'ənd'əma-t'n'ə kodamə bəd'ə s't'ər'-n'ε-n'd'i / \*s't'ər'-n'ε-n'd'i-t.  
toy-DEF.PL which INDEF girl-DIM-DAT girl-DIM-DAT-PL  
‘The toys are for some girl.’

– Lative

- (43) T'ε ki-t'n'ə vir'-i / \*vir'-i-t.  
this road-DEF.PL forest-LAT forest-LAT-PL  
‘These roads are to the forest.’

<b>Summary:</b> The split in elliptical contexts mirrors the split in the predicative position.
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- (44) Inflection on an element under ellipsis and in the predicative position

	adjective	INDEF.GEN	CAR	EL	EQU	unmarked	DEF.GEN	DEF.DAT	INDEF.DAT	LAT
Under ellipsis	+	+	+	+	+	+	–	–	–	–
Predicative position	+	+	+	+	+	+	–	–	–	–

## 4 Summary and implications

1. Modifiers are inflected for nominal features in Moksha only if the noun is absent.
2. Absent noun shows **connectivity to the rest of the noun phrase** and, thus, instantiates nominal ellipsis (i.e., deletion/non-pronunciation of a noun).
3. Inflection appears on the linearly last of multiple modifiers. If a stranded modifier is branching, **the head of the modifier** is inflected.
4. Modifiers that have **their own  $\phi$ -features cannot be inflected** thereby showing the same restriction on the distribution of agreement as in languages with (overt) concord.
5. Modifiers marked for genitive of indefinite declension, caritive, elative, and equative are not case marked nouns, but **featureless attributivizers**.

I would like to suggest that **inflection under ellipsis in Moksha, in fact, instantiates nominal concord**.

- This allows to account for the observed properties:
  - ↪ Inflection appears on the head of the modifier because the head hosts agreement features.
  - ↪ If the modifier has its own features, they intervene and block agreement with elided noun.
- I further suggest that concord exponents are uniformly present in syntax on the modifiers but are overtly realized only if the noun is absent.



## 5 Ellipsis reveals concord

- Syntactic structure is spelled out in steps (see Chomsky (2000, 2001), and also Uriagereka (1999)).

### (45) Spell-Out:

Spell-Out applies to a node that has no unsatisfied features.

- Probes are valued (or checked) by Agree.
- After Agree, probes still have properties that distinguish them from the features that do not trigger Agree (see Epstein et al. (2010, 2012)). These properties make probe features ineligible at the interfaces.

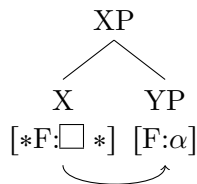
### (46) Probe Conversion:

Probe Conversion applies to valued (or checked) probes and deletes the diacritics that mark probe features as ineligible at PF.

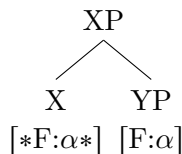
### Sample derivations

- I use asterisks to mark uninterpretability at both LF and PF (cf. the notation by Heck & Müller (2007)).
- Probe Conversion is indicated by the removal of the left asterisk (as PF is traditionally depicted as the left branch on the Y-model).

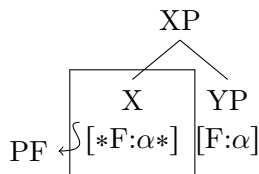
### (47) Agree



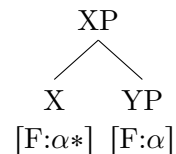
### (48) Valuation



### (49) Spell-Out

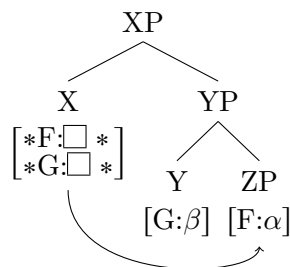


### (50) Conversion

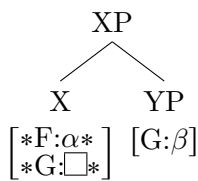


- Structures in (51)-(55) present the case when probe features are phonologically realized.

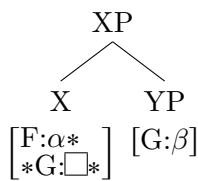
### (51) F agrees



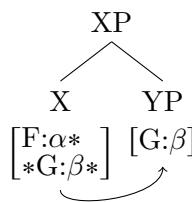
### (52) F is valued



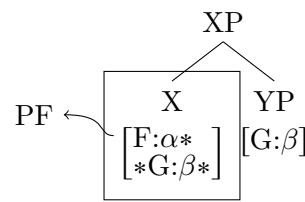
### (53) F converts



### (54) G gets value

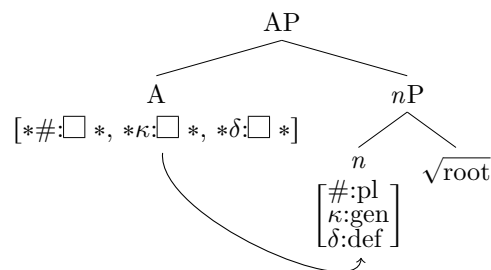


### (55) Spell-Out



### Further assumptions

- Nominal concord is **derived by Agree** (see Carstens (2001, 2018), Baker (2008), Kramer (2009), Danon (2011), Toosarvandani & van Urk (2014), Landau (2016), Ingason & Sigurðsson (2017), Puškar (2017, 2018)).
- Number, case and definiteness features originate **in the n head**, while nominal modifiers have unvalued probes that search all together. (56) Nominal concord
- **AP-over-NP structure** (see, e.g., Abney (1987), Bošković (2005), Murphy (2018), and Salzmann (2018)).
- Following Merchant (2001, 2005) (see also Aelbrecht (2011)), there are different types of [E]-features:  $[E_{[*CAT:N]}]$  for nominal ellipsis

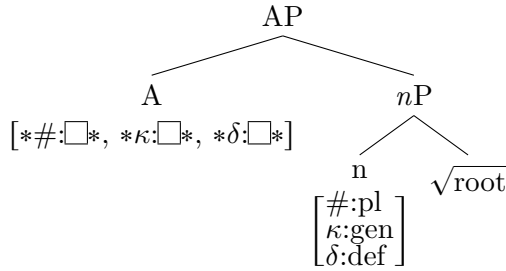


## 6 Analysis

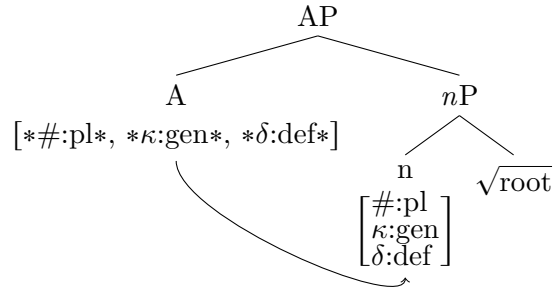
### Absence of concord exponents

- After its agreement with the noun, there are no unsatisfied features on the modifier  $\rightarrow$  Spell-Out can apply.
- Concord probe is not converted at this point, which means that it is not subject for Vocabulary Insertion.

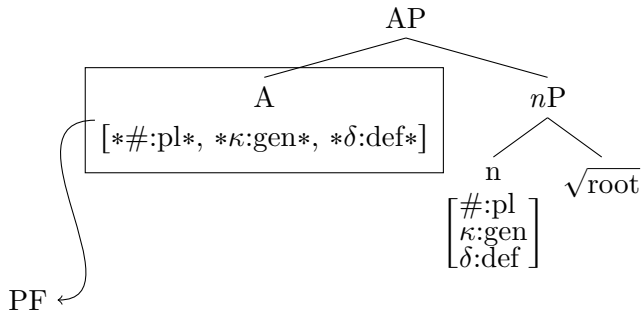
(57) Step I: Unvalued  $\mathcal{C}$



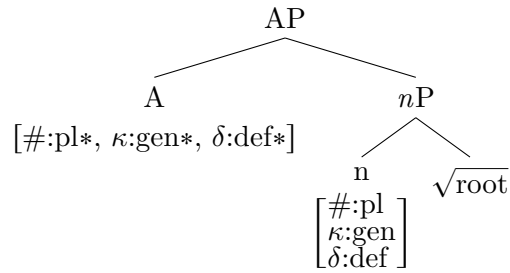
(58) Step II: Agree



(59) Step III: Spell-Out



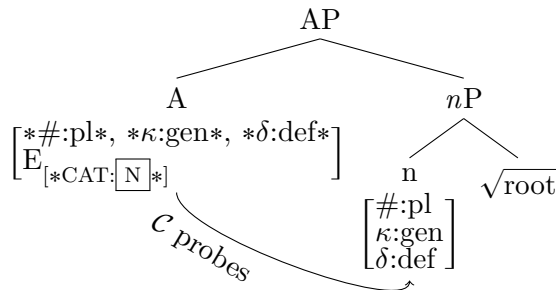
(60) Step IV: Probe Conversion



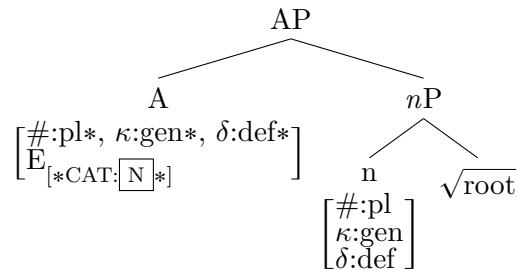
### Inflection under ellipsis

- Concord exponents are present under ellipsis because **a concord probe is not the last unsatisfied feature on a nominal modifier.**

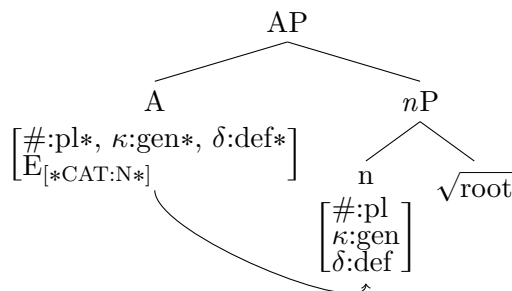
(61) Step II: Agree



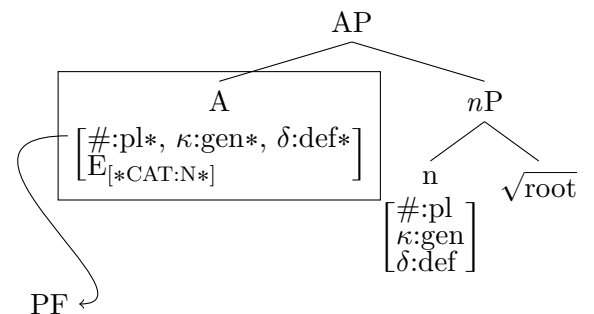
(62) Step III: Probe Conversion



(63) Step IV: [E]-licensing



(64) Step V: Spell-Out



## Other properties

1. Concord is overtly realized only on the **linearly last remnant** because one [E]-feature is enough to trigger ellipsis and it immediately precedes the ellipsis site (see Merchant (2001, 2005) and Aelbrecht (2011)).
2. Inflection appears **on the head** of the branching modifiers because heads bear agreement probes.
3. Modifiers with their **own  $\phi$ -features** show no concord inflection under ellipsis because their probes encounter the features on the modifier first. Their features intervene and do not allow agreement with the noun.

## 7 Conclusion

### 7.1 Summary

#### On the empirical site:

- Inflection under ellipsis appears on the head of a linearly last modifier that has no  $\phi$ -features of its own.
- Modifiers marked for indefinite genitive, caritive, elative, and equative lack  $\phi$ -features in an adnominal position. They are attributivizers homophones to the corresponding case affixes.
- The distribution of inflection under ellipsis is, thus, analogous to the distribution of inflection of nominal concord.

#### On the theoretical site:

- Inflection on nominal modifiers under ellipsis instantiates nominal concord.
- Nominal features are uniformly present on modifiers but are realized only under ellipsis.
- This, in turn, follows from the interaction of local Spell-Out and Probe Conversion.

### 7.2 Alternative approaches

**Licensing of *pro*** (see Kester (1996a,b), see also Lobeck (1995)): Ellipsis site is occupied by *pro* and that *pro* has to be identified and licensed. The modifier agrees with *pro* to license it.

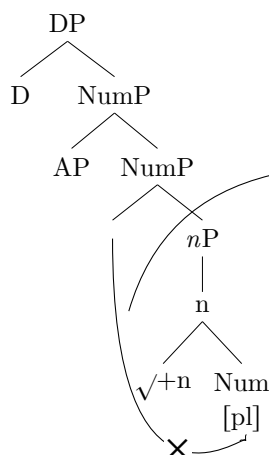
**Substantivization** (see Bošković & Şener (2014)): Modifiers are substantivized and therefore marked for nominal features.

*Main problem:* As shown in section 2.2, the ellipsis site contains a full-fledged nominal structure; i.e., there is no *pro* or nominalization of the remnant.

**Cliticization** (see Dékány (2011, 51-53, 2015), Lipták & Saab (2014), Ruda (2016), Saab & Lipták (2016), Murphy (2018), and Saab (2019)).

- The Lowering of the number features is blocked by ellipsis.
- ‘Stranded’ affix is repaired by Local Dislocation (see Embick & Noyer (2001); Embick (2007)).

(65) Ellipsis



(66) Linearization  $\rightarrow$  Local Dislocation  
 adjective \* PL      adjective-PL

Some problems:

- Approach does not capture inflection with complex modifiers: Inflection is predicted to appear on the argument of the participle, contrary to the data.
- Inflection is over-generated to appear on all nominal modifiers.

(67) Summary: Existing approaches to inflection under ellipsis

	<i>pro</i>	NMN	cliticization
Inflection only under ellipsis	✓	✓	✓
On the head of the branching modifier	✓	✓	✗
Connectivity effects	✗	✗	✓
Ellipsis without inflection	✗	✓(?)	✗
Correlation to the predicative agreement	✓	✗	✗

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## Appendix A: Inessive

- The judgments of native speakers vary with respect to whether inessive can show inflection under ellipsis.
- For this reason, I omit inessive from further discussion.

(68) Mon n'ej-in'ə                    an'c'ək [jaks't'ər' vaz'-n'ε-sə c'ora-n'ε-t']                    / %[vaz'-n'ε-sə-t'].  
 I see-PST.3.O.1SG.S only red hat-DIM-IN boy-DIM-DEF.SG.GEN hat-DIM-IN-DEF.SG.GEN  
 ‘{Context: I am looking for the boy in the blue hat.} I only saw the [boy] in the red hat.’

- Inessive marked modifiers can show agreement in the predicative position and, thus, judgements that rule out inflection on the inessive under ellipsis might be problematic.

(69) S'in' vir'-sə-t.  
 they forest-IN-PL  
 ‘They are in a forest.’

## Appendix B: Non-verbal predication

### More on non-verbal predication in Moksha

- In the third person present tense, adjectives cannot take verbal tense inflection, but agree with a third person subject in number. (see Kholodilova (2016, 2018) on a detailed description of non-verbal predication in Moksha).

- (70) Son jomla / \*jomla-j.  
 he small small-NPST.3[SG]  
 ‘He is small.’
- (71) S'in' jomla-t / \*jomla-j-t'.  
 they small-PL small-NPST.3-PL  
 ‘They are small.’

- If the subject is a first or second person pronoun or if the predication has reference to the past, the predicate is obligatorily marked for tense.
- Agreement for number and person then does not depend on  $\phi$ -features on the non-verbal predicate. This due to the tense marking.
- The T head that is higher than the subject is responsible for the predicative agreement, so that the subject is the closest goal for agreement, and features on the non-verbal predicate cannot intervene (see also Baker (2008, 56-63)).

- (72) Min' t'ε učit'əl'-n'ə-tamə.  
 we this teacher-DEF.PL-NPST.1PL  
 ‘We are these teachers.’
- (73) Min' ton' učit'əl'-n'ə-l'-əmə.  
 we you.GEN teacher-DEF.PL-IMPF-PST.1PL  
 ‘We were your teachers.’

### Against the silent noun analysis

- Babby (1975; 2009, 93-110) and Bailyn (2012, 68-70) suggest that adjectives in the predicative position modify a silent noun.<sup>3</sup>

- (74) [ modifier  $\emptyset_{\text{noun}}$  ]

- If so, restrictions on agreement in the predicative position can be reduced to restrictions on inflection under ellipsis.

Empirical evidence against the presence of null noun:

#### 1. No usage that is restricted to adnominal modification

- A form marked for relative can be used in the adnominal position to mark clothes.
- Such use of the relative form is ungrammatical otherwise.

- (75) a. S'in' sen'əm panar-stə s't'ər'-n'ε-t'n'ə.  
 they blue dress-EL girl-DIM-DEF.PL  
 ‘They are the girls in blue dresses.’
- b. \*S't'ər'-n'ε-s' sa-s' sen'əm panar-stə.  
 girl-DIM-DEF.SG come-PST.3[SG] blue dress-EL  
 ‘The girl came in the blue dress.’
- c. \*S'in' sen'əm panar-stə / \*panar-stə-t.  
 they blue dress-EL dress-EL-PL  
 ‘They are in blue dresses.’

This restriction is unexpected if the relative form modifies a silent noun.

#### 2. Differences in inflection

- Inflection may differ from the one that is expected in an elliptical context.

- (76) S'in' c'ebər' doktər'-n'ə.  
 they good doctor-DEF.PL  
 ‘They are good doctors.’
- (77) S'in' c'ebər'-t' / \*c'ebər'-n'ə.  
 they good-PL good-DEF.PL  
 ‘They are good.’

**Conclusion:** Number inflection cannot result from ellipsis. It is subject agreement.

<sup>3</sup> The analysis is designed to account for differences between long and short form adjectives in Russian; see Geist (2010) and Borik (2014) for some empirical shortcomings of this analysis.

## Appendix C: Noun phrase structure and nominal concord

- I pursue an Agree based approach to nominal concord (following literature cited above and pace Pesetsky (2013), Norris (2014, 2018), Baier (2015), Bayırlı (2017), Hanink (2018), Ackema & Neeleman (2019), and Blümel (2019).)
- I suggest that this approach is superior because it does not lead to redundancy: Can the new operations (i.e., post-syntactic features copying or downwards feature percolation) derive other phenomena captured by Agree?
- There are no good reasons to assume that concord is different from other instances of agreement.

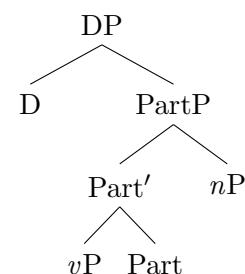
Norris's 4 arguments that concord is different:

1. In some languages, concord is realized on multiple elements within DP, while clausal agreement appears only on the predicate.
  - Clausal agreement can also appear on multiple hosts: on the main verb and on the auxiliary, or on other elements such as adverbs and postpositions (see Bond & Chumakina (2016) on these phenomena in Archi).
2. Only heads participate in predicative agreement, while elements showing nominal concord can occupy a specifier and an adjunct position as well.
  - This depends on assumptions about the architecture of DP, cf. the analysis developed below.
3. Predicative agreement takes place between two distinct extended projections, but a probe and a goal are within one extended projection under nominal concord.
  - An interesting observation, but how this could be problematic for any existing implementation of Agree?
4. Predicative agreement may be restricted by the case of a potential goal, but such restrictions are not attested for nominal concord.
  - Case sensitivity of predicative agreement is sometimes attributed to the fact that oblique nouns are embedded in PP/KP and this prevents probes from reaching the features of DP. Given that all nominal modifiers are introduced below a PP/KP, no connection to case is expected.

### More on the noun phrase structure

- **Complex modifiers** were argued to be challenging for AP(/PartP/NumeralP etc.)-over-NP (see Alexiadou & Wilder (1998), Cinque (2010), and Roehrs (2018)).
- I suggest that the modifier first combines with its argument and then with the noun.
- Probes from Part head project to Part' that c-commands *nP* (see, e.g., Béjar & Rezac (2009), Carstens (2016), and Keine & Dash (2019) on probe projection)

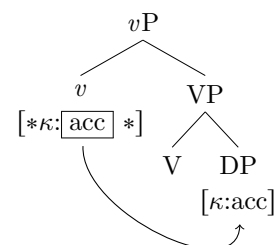
(78) Complex AP



**Low origin** of definiteness and case is **not problematic** (just looks unusual).

(79) Case assignment

- **Definiteness:** It originates on *n*, but it is then interpreted on D (cf. Hankamer & Mikkelsen (2005) and Heck et al. (2009)).
- **Case:** Heads that are traditionally conceived of as case assigners have in fact an unchecked case feature.



On the contrary, **high origin** of nominal features is highly problematic:

- Any syntactic Agree-based approach to nominal concord then is incompatible with the **Strict Cycle Condition** (see Chomsky (1973, 1995, 2019)): At the point then case is assigned to a DP, it is a proper subpart of a derivation.



- One attempt to solve this problem come from Feature Sharing (see Frampton & Gutmann (2000, 2006), Pesetsky & Torrego (2007) and Kramer (2009), Danon (2011) for such analysis of concord), but the this concept raises further issues:
  - Syntactic terminals cannot be discrete objects.
  - A challenge for the realization: A dominated by multiple nodes constituent is typically spelled out only in one of its positions (see Citko (2011), Johnson (2017)), but a shared feature is morphologically realized in all of them.

## Appendix D: Eligibility at the interface

- Probes are valued (or checked) by Agree.
- After Agree, probes still have properties that distinguish them from the features that do not trigger Agree (see Epstein et al. (2010, 2012)). These properties make probe features ineligible at the interfaces.
  - This will be indicates by preserving asterisk diacritics after application of Agree ( $[*F:\alpha*]$ ).
- **To get interpretable at PF and receive phonological realization, probe features need to undergo Probe Conversion.**
  - I will represent this by the removal of an asterisk to the left of a probe ( $[F:\alpha*]$ ).

(80) Probe Conversion:

Probe Conversion applies to valued (or checked) probes and deletes the diacritics that mark probe features as ineligible at PF.

*Proof of concept*

- The notion of Probe Conversion rests on the following assumption:
  - Probes do not get identical to the originally valued features by the mere fact of valuation.
- I will show that this assumption is in fact inherent to the minimalist approach.
- The discussion goes back to **Full Interpretation** principle (see Chomsky (1986)).

(81) Full Interpretation:

Each element present at the interface must have an interpretation there.

- Applied to LF:
  - Features not contributing to the semantic interpretation must be stripped away before the syntactic object is passed to the interface.

*Problem:* Uninterpretability at LF is per se not available in syntax.

**Solution 1** (Chomsky, 1995, 2000):

- Features uninterpretable at LF correspond to the unvalued features in syntax.
- The unvalued features must be deleted upon valuation because they will lose this difference later.
- Deletion  $\neq$  erasure: After valuation features are still accessible in syntax and morphology.
  - ‘Deletion’ is just a **diacritic**.

**Solution 2** (Chomsky, 2004, 2008) (and see also Epstein & Seely (2002)):

- All uninterpretable features are introduced on the phase heads (C,  $v^*$ ) and are then inherited by lower projections (T, V).
- **Valuation applies simultaneously with Transfer.**
  - No need for additional diacritics.

*This analysis cannot correctly account for deletion of uninterpretable features in a rather sizable amount of cases; see Epstein et al. (2010, 2012), Obata & Epstein (2011).*

1. As pointed out by Richards (2007), it precludes the presence of uninterpretable features on phase heads and in their specifier because they undergo transfer as part of a higher phase. This excludes:
    - Reflexes of successive cyclic movement;
    - Complementizer agreement;
    - Object agreement (assuming its locus is *v*; see Béjar & Rezac (2009));
    - Agreement on articles and other D elements (assuming DP is a phase; see Svenonius (2004)).
  2. This solution also cannot handle uninterpretable features on elements that agree within a current phase and then move out of it:
    - T-to-C movement
  3. Simultaneous application of all operations on the phase level excludes feeding relations between them.
    - It has been shown that such relations exist; see, e.g., Kučerova (2007) on object shift feeding agreement with a lower noun phrase in Icelandic.
- The system does not solve the (un)interpretability problem.

**Conclusion: Marking by diacritics is the only valid solution.**

*Which features are ineligible at PF?*

1. Merge features are generally not subject to the morphological realization.
  2. Agree features are postulated in syntax more frequently than they are actually realized
    - Agree is used for licensing; see, for instance, Vergnaud (2008/1977) and Chomsky (1981, 49) on case licensing for nouns that is also in force in languages without an overt case morphology.
    - Agree is sometimes required for other operations to apply; see Chomsky (2000, 2001) on the requirement for movement to be preceded by Agree.
- I hypothesize that non-realization of Merge features and restricted realization of probe features are due to **uninterpretability of the operation inducing features at PF**.
  - If there is a phonological realization of a probe feature, it means that it underwent Probe Conversion before Spell-Out.

## 8 Appendix E: More on local Spell-Out

- Syntactic structure is spelled out in steps (see Chomsky (2000, 2001), and also Uriagereka (1999)).
- *What constitutes the spell-out domain:* C and *v*\*; also complements of the category-defining heads (see Marantz (2007) and Embick (2010) among others); each phrase (see Müller (2011)); each Merge induces Spell-Out (see Wojdak (2008) and Starke (2009)); each syntactic operation (see Epstein & Seely (2002))
- Under the **local approach to Spell-Out** that I am pursuing here, Spell-Out domains do not correspond to syntactically inaccessible domains (see, e.g., Dobler et al. (2011), Piggott & Travis (2017), Martinović (2019), and also Chomsky (2008, 143)).
- There are different ways of deriving opacity in syntax without appealing to Spell-Out; see Rackowski & Richards (2005), Müller (2011), and Keine (2019) for some options.