Exhaustivity and predication: Non-discourse function of the left periphery

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1. Background

- Intuitively, the clause is divided into 'domains', and each domain is the locus of certain kinds of information/operations
- One implementation of this observation: Grohmann's (2003) clausal tripartition

(1) Prolific Domains
  (i) $\theta - domain$: part of the derivation where **theta relations** are created
  (ii) $\varphi - domain$: part of the derivation where **agreement properties** are licensed
  (iii) $\omega - domain$: part of the derivation where **discourse information** is established

- Each domain has a particular 'function', captured by *context values* (|Θ|, |Φ|, |Ω|) that each head in its particular domain carries (e.g. *extended projections*, Grimshaw 1990)
  - Context values group various projections into a single Prolific Domain
  - Each Prolific Domain contextually identified in this way ships the information relevant for the specific context to the interfaces
- It is similarly implied that movement to that domain is triggered by a feature that encodes some of that 'function'
- Left Periphery: "discourse" function (topic, 'focus'), clausal type & force
- Rizzi (1997, 2004): articulated structure of the left periphery

(2) $[_{\text{ForceP}}$ ... Force $[_{\text{TopP*}}$ ... Top $[_{\text{FocP}}$ ...Foc $[_{\text{TopP*}}$ ... Top $[_{\text{FinP}}$ ... Fin $[_{\text{IP}}$]]]]]]

- In the talks given at this forum and from the literature we know that the partition between the A and the A-bar domain is not at all clear-cut, and that the grammatical and information-structural domains often overlap and potentially influence each other.
- I here discuss a such case where the A and A-bar domains appear to be divided in the expected way (the inflectional layer and the left periphery) but the A-bar domain is also the locus of non-information structural relations in one particular case – **nominal predication**.

Preview

- Wolof is a *discourse-configurational* language, with left peripheral positions for **topics** and **Exhaustive Identification**

(3) [$_{\text{TopP}}$ Man, [$_{\text{CP}}$ Yusu Nduur la [$_{\text{IP}}$ a gis]]
1SG.STR Youssou N'Dour C_{Wh} 1SG see
'Me, it's Youssou N'Dour that I saw.'

- One other element that obligatorily moves to Spec,CP are **nominal predicates** in clauses with no copula

(4) [$_{\text{TopP}}$ Yusu Nduur [$_{\text{CP}}$ waaykat la [$_{\text{IP}}$ ∅]]]
Youssou N'Dour singer C_{Wh} 3SG
'Youssou N'Dour is a singer.'

- (4) is an information-structurally neutral sentence – the nominal predicate is not exhaustified or otherwise necessarily focused
- The clause-internal subject (the real argument) must be a clitic pronoun; a non-clitic subject can only be a topic

Puzzles:

1. What triggers movement to Spec,CP? What kind of a position is Spec,CP?
2. Is the fact that nominal predication must be established in the left periphery a particular quirk of Wolof, or is it found more broadly?

This talk:

1. Spec,CP is a position for predicates, and exhaustivity is epiphenomenal (Klecha and Martinović 2015)
    - That analysis has something to say about what exhaustivity might and might not be, but it relies on a specific meaning that we assign to C_{Wh} *la*
    - In this talk, I want to situate the problem in a broader context, both in the syntax of Wolof and cross-linguistically, and propose that this or a similar analysis may be needed more generally for discourse-configurational languages.
2. The left periphery is suitable for predication because of its topic-comment structure.

2. "Focus" movement

- Rizzi's FocP is meant to host elements moved to the left periphery for "focus", including wh-words
- In the languages I'm interested in here, movement to this position is generally not for just any kind of focus, but specifically for Exhaustive Identification (Horvath 2007)

(5) Exhaustive Identification in Wolof
Ceeb la Ayda di lekk. #Daf-a=∅-y lekk pataas itam.
rice C Ayda IPFV eat do-C=3SG-IPFV eat yam also
'It's rice that Ayda eats. #She also eats yams.'

- In the literature, this is commonly captured via an information-structural feature on a head which triggers movement of the EI-ed constituent (such as a focus feature in Horvath 1986, 1995; Brody 1990, 1995 or the EI operator in Horvath 2007)
- A more detailed look at such languages reveals that elements that are not EI-ed can occupy the EI position.

Exhaustivity and predication in Hausa (Chadic)

- Hausa has an element (*nè/cè*) that occurs with EI-ed constituents, variably analyzed as either a left peripheral head (Green 2007), or a focus-sensitive exhaustivity marker (Hartmann and Zimmermann 2007)

(6) *Exhaustive identification in Hausa* (Green 2007)
a. Yârā sun sàyi àbinci
children 3PL.PF buy food
'The children bought food.'
b. Abinci$_i$ (**nè**) yârā sukà sàyā t$_i$
food FM.M children 3PL.FOC.PF buy
'It's food that the children bought.'

- Green (2007) shows that EI involves A′-movement to a left-peripheral position
- The same element *nè/cè* obligatorily occurs in copular sentences.

(7) *Predicational copular sentence in Hausa* (Green 2007)
Audù ɗālìbī **nè**
Audu student.M FM.M
'Audu is a student.'

- Green (2007) shows that nominal predicates are in the same left-peripheral positions as EI-ed elements, and that the subject has properties of a topic.

- There is no exhaustivity related to the predicate in examples such as (7).

Exhaustivity and predication in Hungarian

- Hungarian famously has a pre-verbal EI position (Horvath 2007), which can be occupied by a single argument or adjunct.
- This position is 'shared' with a verbal particle; there is no information-structural effect in that case.

(8) *The preverbal position in Hungarian* (É. Kiss 2006)

a. Péter **szét** tépte a levelet.
Peter apart tore the letter
'Peter tore the letter apart.'

b. Péter **a levelet** tépte szét.
Peter the letter.ACC tore apart
'It was the letter that Peter tore apart.'

- This position is a left-peripheral, A′-position (Brody 1995; É. Kiss 1998; Puskás 2000; Horvath 2007)
- Nominal predicates occur in the same position

(9) *Hungarian nominal predicate* (Hegedűs 2013, 61)
János **orvos** lesz.
John doctor will.be
"John will be a doctor."

- Due to this variety of elements that are found in the pre-verbal field in Hungarian, which seems to exclude a possibility for a unified semantics of this position, different functional projections are usually posited for each of the different elements; there are a couple of attempts in the literature to treat the pre-verbal field as one position:
  - É. Kiss (2005, 2006): exhaustivity is not encoded in the grammar, but is the result of *specificational predication* – the exhaustive reading arises when a constituent raised to the predicate position is a definite or a specific indefinite noun phrase (Huber 2000: in specificational sentences the predicate implies that its specification of the individuals that make up the set denoted by the subject is exhaustive)
  - Wedgwood (2003): the position immediately preceding the tensed verb is the position of *main predication*; exhaustivity is a pragmatic effect.
- A language like Wolof, where the exhaustivity position and the nominal predicate position is clearly one and the same, gives support to attempts to seek out a semantics for Hungarian preverbal position that is unrelated to information-structural notions such as focus/exhaustivity.

3. Wolof clause types

- Wolof is 'top-heavy': all finite indicative clauses contain a high projection which hosts complementizer-like elements – *sentence particles* (Dunigan 1994).
- Syntactically, there are two clause 'types' (Martinović 2015, to appear)
  1. A verb is in C
  2. An XP A′-moves to Spec,CP

(10) *V-to-C*
Ayda lekk-**na=∅** gato bi.
Ayda eat-C_V=3SG cake the.SG
"Ayda ate the cake."

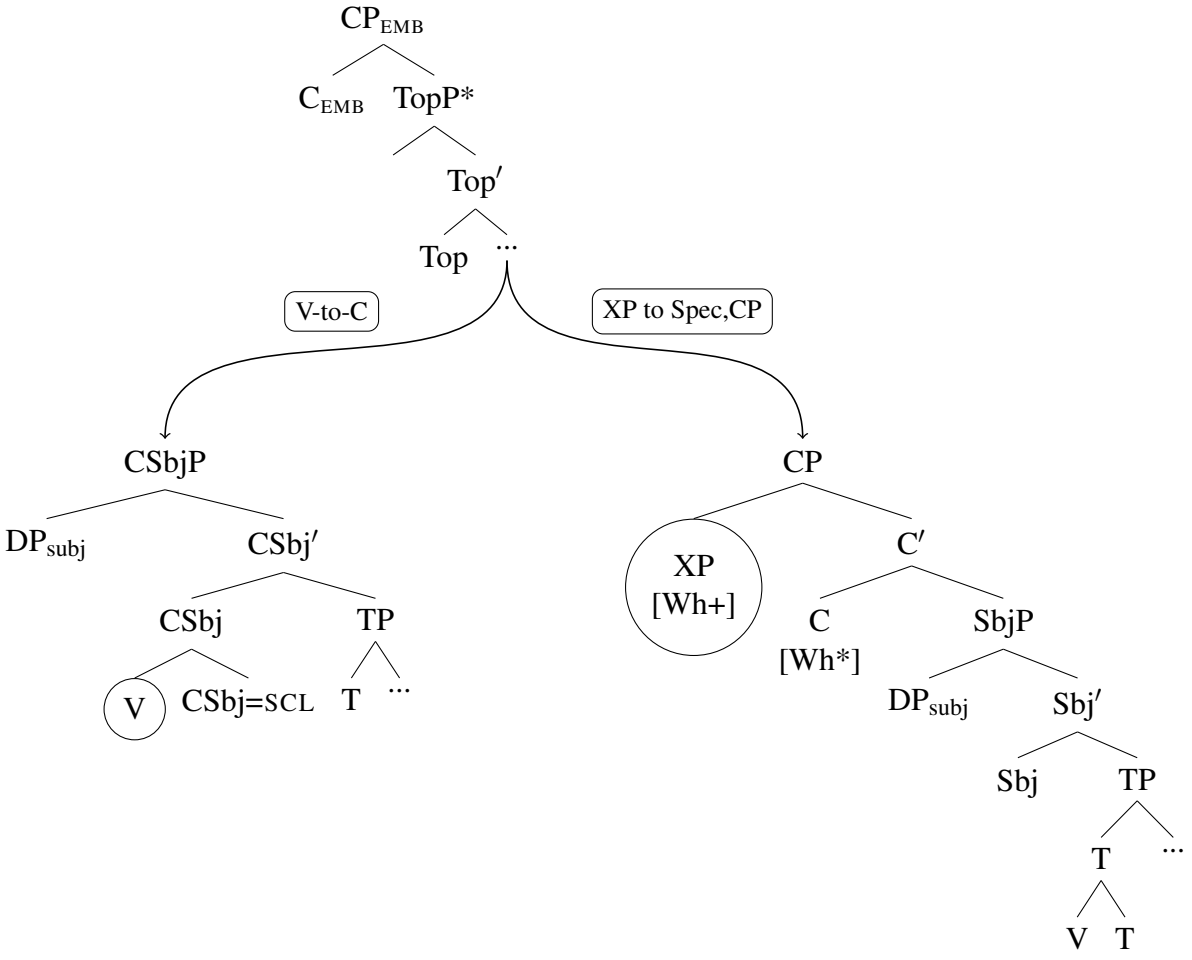
The subject is in the left periphery

- it must be clitic-doubled
- it is optional
- it can be a strong pronoun

(11) *A'-movement to Spec,CP*
Gato bi **la** Ayda lekk.
cake the.SG C_{Wh} Ayda eat
"It's the cake that Ayda ate."

The subject is clause-internal

- it cannot be clitic-doubled
- it is not optional
- it cannot be a strong pronoun



- Martinović (2015):
  - V-to-C clause has one bundled head (CSbj) that does two jobs: (i) hosts the complementizer (C) & (ii) hosts the subject (Sbj)
  - A′-movement clause has two separate heads: one that hosts the complementizer and the A′-moved element in its specifier (C), and the other that hosts the subject (Sbj)

V-to-C and A′-movement of an XP to Spec,CP are in complementary distribution.

- Proposal: there is always a predicate in C/Spec,CP
- Evidence: the convergence of the two clause types in **nominal predication**
- Consequence: 'exhaustivity' or 'focus' cannot be the trigger of A′-movement to Spec,CP

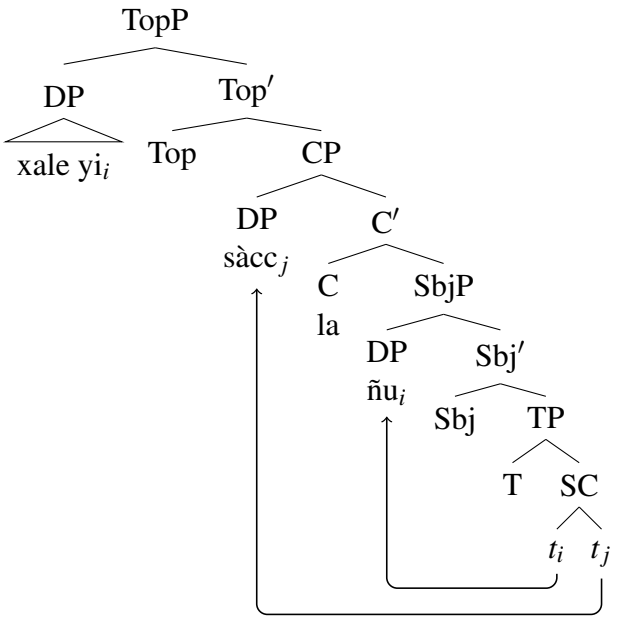
4. Nominal predicates

- Clauses with nominal predicates look like a blend of the V-to-C clause and the A′-movement clause

(12) Xale yi sàcc la=ñu.
child the.PL thief C_{Wh}=SCL.3PL
"The children are thieves."

- The C that occurs is the one from the A′-movement clause type
- The predicate nominal A′-moves to Spec,CP
- The optional subject is obligatorily in the left periphery (it's a topic) and is clitic doubled

(13)



- (12) is an information-structurally neutral sentence: the predicate is not exhaustified
- Movement to Spec,CP passes the standard movement tests (Torrence 2005, 2012)
- This really is A′-movement
  - Wolof allows extraction only out of clauses with the wh-movement C (Dunigan 1994; Martinović 2015, 2017)

    (14) a. Ayda lekk-na=∅ gato bi.
    Ayda eat-C_V=3SG cake the.SG
    'Ayda ate the cake.'
    b. *Lan_i Ayda lekk-na=∅ t_i?
    what Ayda eat-C=3SG
    c. Lan_i la Ayda lekk t_i?
    what C_{Wh} Ayda eat
    'What did Ayda eat?'

  - A *wh*-question where the nominal predicate is the wh-word has the same form as a declarative sentence

    (15) a. Xale yi **lan** l-a=ñu?
    child the.PL what *l*-C_{Wh}=3PL
    "What are the children?"
    b. *Lan l-a xale yi?
    what *l*-C_{Wh} child the.PL

  - Long distance extraction in Wolof requires the presence of *la* in every intermediate C position

    (16) a. Gëm na=ñu ni Ayda lekk na=∅ gato bi.
    believe C=3PL that Ayda eat C=3SG cake the.SG
    'They believe that Ayda ate the cake.'
    b. Lan **la**=ñu gëm ni t_i **la** Ayda lekk t_i?
    what C_{Wh}=3PL believe that C Ayda eat
    'What do they believe that Ayda ate?'

  - Nominal predicates can be long-distance extracted

    (17) a. Usmaan gëm na=∅ ni xale yi sàcc la=ñu.
    Oussman believe C=3SG that child the.PL thief C=3PL
    'Oussman believes that the children are thieves.'
    b. Lan_i la Usmaan gëm ni xale yi t_i **la**=ñu?
    what C_{Wh} Oussman believe that child the.PL C_{Wh}=3PL
    'What does Oussman believe the children are?'

- The subject in copular clauses is a topic: it cannot be a bare quantifier (Rizzi 1986, 1997)

  (18) *Kenn sàcc la=∅.
  someone thief C_{Wh}=3SG
  intended: 'Someone is a thief.'

- It is not the case that nothing can be exhaustified in copular sentences:

  (19) Xale yi a di (>yeei) sàcc.
  child the.PL C COP thief
  'It's the children who are thieves.'

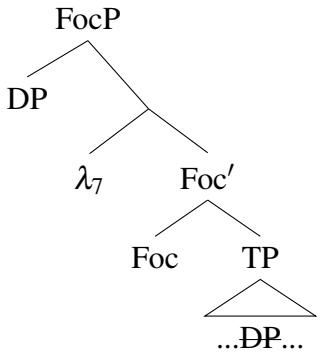
1. What drives movement to Spec,CP, so that it attracts both EI-ed XPs and nominal predicates?
2. What makes the left periphery suitable for the establishment of the subject-predicate relation?
3. Why is this not available in all languages that have both topics and a position for A′-moved elements, like English? I.e. what is special about C in discourse-configurational languages like Wolof?

- I have something specific to say about (1) and (2), but nothing very insightful about (3).

Klecha and Martinović (2015)

- We aim to give a unified analysis for movement to Spec,CP that results in exhaustivity, and movement to Spec,CP of nominal predicates that does not.
- Problem:
  - In Heim & Kratzer style semantics, the head that triggers movement does no work; strictly speaking, it doesn't even take the moved element as its semantic argument, as in (20)
  - In a discourse-configurational language, it seems that we would want to give meaning to the attracting head

(20)



- Our solution is to follow a compositional approach to movement (Sternefeld 2001; Kobele 2010; Kennedy 2014), and treat assignment functions as part of the model, which allows attracting heads to bind the traces of movement to their specifiers

- The moving XP agrees with its attracting head, which allows transmission of the index n
$[\![\text{AgrS}^0_n]\!] = \lambda p \lambda x \lambda g[p(g^{x/n})]$

- This allows attracting heads to bind the traces of movement to their specifiers, which means that we can assign meaning to *la*.

(21) The complementizer *la*

$$\begin{bmatrix} \text{PHON} & la \\ \text{CAT} & C \\ \text{SEL} & \begin{bmatrix} \text{COMP} & TP \\ \text{SPEC} & NP \end{bmatrix} \\ \text{SEM}_n & \lambda p \lambda Q \lambda g[Q(\iota x[p(g^{x/n})]] \end{bmatrix}$$

- This means: *la* is a function from a proposition p, a property Q and an assignment g to true if that property holds of the unique individual x such that p is true with respect to an assignment that's just like g, except it binds n to x. In other words, when an XP moves to *la*'s specifier, *la* binds its trace to an iota operator.

- We also have to do another thing to make this work: type-shift every XP that is to move into Spec,CP into a property (type $\langle e,t \rangle$).

(22) The typeshifting N head ID

$$\begin{bmatrix} \text{PHON} & \emptyset \\ \text{CAT} & N \\ \text{SEL} & [DP] \\ \text{SEM} & \lambda x \lambda y[x = y] \end{bmatrix}$$

- Exhaustivity does not result from making the extracted phrase exhaustive, but in making the complement of the attracting head unique. The C hosting *(l)a* has semantics whereby the unique individual satisfying the property denoted by its complement (the CP containing the trace of movement) has the property denoted by its specifier (the moved nominal). EI results from the moved nominal being a referential expression.

- Exhaustivity is neutralized in cases like predication, because the remnant of movement already denotes a singleton; thus making it unique is not informative.

- This analysis translates (23) and (24) as (25) and (26), respectively.

(23) *Exhaustive Identification*
Musaa la=ñu gis.
Moussa C_{Wh}=3PL see
"It's Moussa that they saw."

(24) *Nominal predication*
Jangalëkat la=ñu.
teacher C_{Wh}=3PL
"They are teachers."

(25) The unique individual they saw has the property of being Moussa.

(26) The unique individual identical to them has the property of being a teacher.

(If you'd like to see derivations of (23) and (24), they're in the Appendix)

- Circling back to Wolof's two clause-types: V-to-C movement and A′-movement to Spec,CP are two sides of the same coin?
- If that is correct, then movement to the C-domain is not triggered by information-structural features.

5. Predication in the left periphery

What makes the left periphery suitable for 'predication'?

- It is common for a topic-comment structure to be reanalyzed into a subject-predicate structure (Li and Thompson 1977)
- The topic-comment structure of the left periphery restricts the kinds of copular sentences in Wolof that can have the NP NP *la* form; e.g. equative sentence as in (27) are ungrammatical:

(27) *Clark Kent Superman la=∅.
Clark Kent Superman C_{Wh}=3SG
intended: 'Clark Kent is Superman.'

- Even definite descriptions are infelicitous as predicates in predicational copular sentences, in an example such as (28):

(28) *Saamba sàcc bi la=∅
Samba thief the.SG C=3SG
intended: 'Samba is the thief.'

- Specificational sentences, however, are felicitous in the NP NP *la* structure:

(29) Waykat bi Yusu Nduur la=∅.
singer the.SG Youssou Ndour C=3SG
'The singer is Youssou N'Dour.'

- I propose that the topic-comment structure of the left periphery forces the two NPs to be asymmetric. Descriptively, NP2 (comment) must contribute information about NP1 (topic).
  - Heim (1982): definite descriptions come with a familiarity presupposition, and can only be felicitously used against a common ground in which the discourse referent they presuppose is already defined (in that sense, they are anaphoric)

- Definite descriptions in Wolof appear to be under pressure to be interpreted referentially, which renders them infelicitous as NP2 in predicational sentences.
- This also excludes equatives from the topic-comment structure.
- In specificational sentences, NP1 is an individual concept (of type $\langle se,t\rangle$) (Romero 2005; Arregi et al. 2020), so the specificational sentence can be understood as satisfying the topic-comment structure. Individual concepts are functions from possible worlds in W to individuals in D (they are descriptions that determine different referents at different worlds and/or times). NP2 in (30) then does contribute information about NP1 – it picks out the individual who is the perpetrator of a particular theft in the real world.

  (30) Sàcc bi Sàmba la=∅.
  thief the.SG Samba C=3SG
  'The thief is Samba.'

- There are several types of repairs in Wolof that suggest this might be on the right track:
  - **Making NP1 more topical.** Context: A theft has occurred, and the perpetrator is unfamiliar, but he is one of the people present in the interrogation room. An eyewitness enters, points at Samba, and utters (several of my consultants independently provided this scenario, insisting on the pointing gesture):

    (31) Sàmba$_{\text{DEM}}$ sàcc bi la=∅.
    Samba thief the.SG C=3SG
    'Samba is the thief.'

  - By demonstratively picking out the individual denoted by NP1 out of a group of people, NP1 is made more topical than NP2, since demonstratives are higher on the Givenness Hierarchy than definite descriptions (Gundel et al. 1993).
  - **Making NP2 less familiar.** Definite NPs which cancel familiarity because they presuppose uniqueness should be felicitous as NP2:

    (32) ?Yusu Nduur ki gënë siiu ci musicien yi ci Senegal la=∅.
    Youssou N'Dour C most famous amongst musician the.PL in Senegal C=3SG
    'Youssou N'Dour is the most famous musician in Senegal.'

  - **Interpreting NP2 as property.** If *Youssou N'Dour* is interpreted as property-denoting, then (33) is fine.

    (33) Musaa Yusu Nduur la=∅.
    Moussa Youssou N'Dour C$_{\text{Wh}}$=3SG
    meaning: Moussa sings as well as Youssou N'Dour.

- How should this be formalized?
  - Is this superimposed on syntax, like a filter?
  - Is it part of syntax more directly, through features?

6. Conclusion

I explored two properties of the left periphery in Wolof

1. The variable interpretation of elements that move to Spec,CP as either exhaustified or not.
2. The topic-comment structure of the left-periphery, and how that influences the kinds of constructions that are found there.

I proposed that exhaustivity is epiphenomenal, resulting from the specific semantics of the attracting head C, which makes its complement unique.

- If I am correct in claiming that this is a more general phenomenon, then a head with this kind of a semantics should be available more generally. Why is it available in Wolof, Hungarian, Hausa, but not in English? (I.e. what is the source of this variation, and can we predict it based on independent properties of a language, or is it just a variation in the lexicon?)

What kind of a syntactic trigger do we want to attribute to this movement?

- Is it just the familiar Edge/Wh-feature, and the fact that the moved element is a predicate is orthogonal and results from the selectional properties of the movement trigger? OR
- Does C specifically attract a *predicate*?

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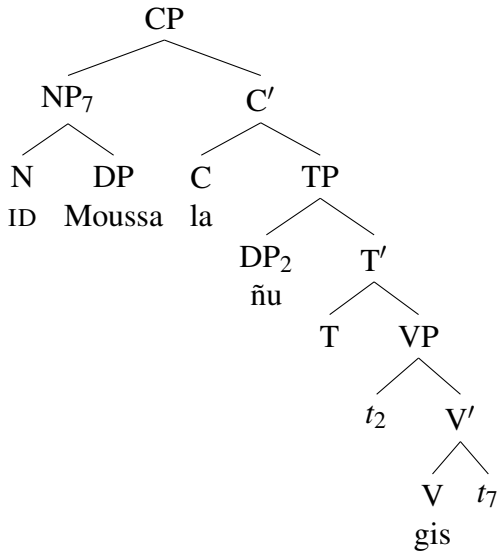
A. Derivations

Deriving Exhaustivity

(34) [$_{CP}$ Musaa la [$_{TP}$ ñu gis]].
Moussa C they see
"It's Moussa who they saw."

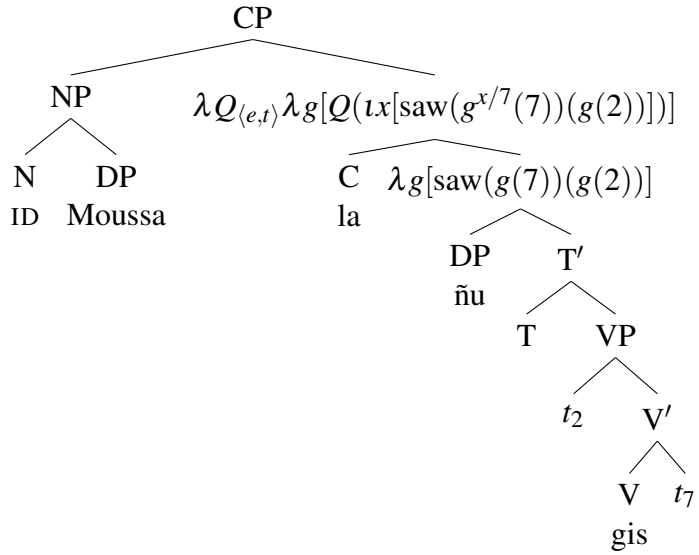
(35)



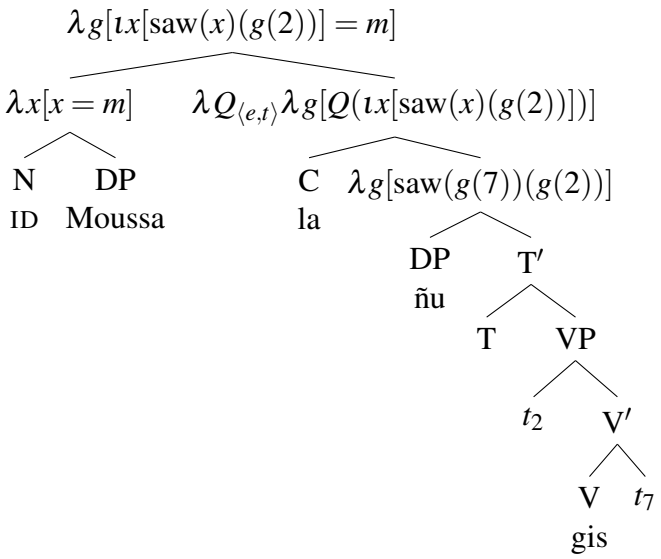
- typeshifted DP base-generated in typical object position
- result is a type-mismatch; merge *(l)a*
- move nearest NP; mismatch resolved

$[\![\text{la}]\!] = \lambda p \lambda Q \lambda g[Q(\iota x[p(g^{x/n})])]$

(36)



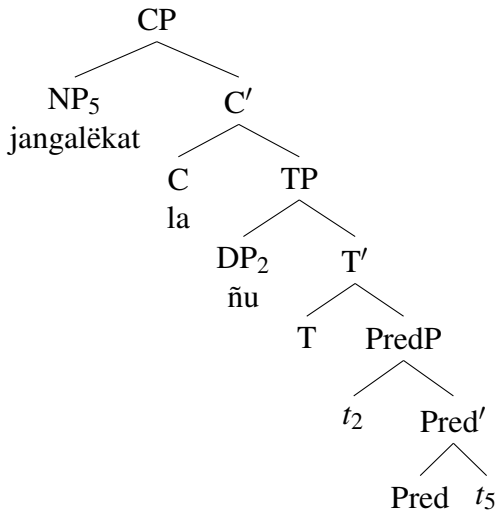
(37)



Deriving predication

(38) [$_{CP}$ Jangalëkat la [$_{TP}$ ñu]].
teacher C 3PL
"They are teachers."

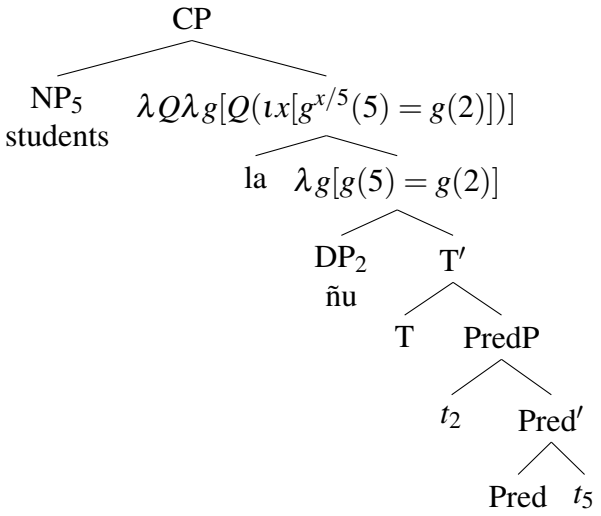
(39)



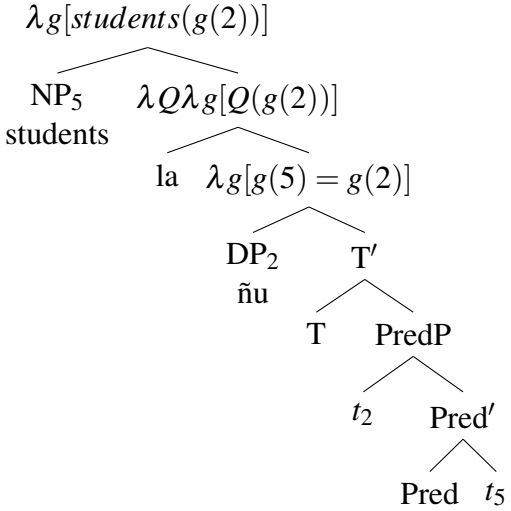
- the subject pronoun in this case must be of type $\langle e,t\rangle$, not e; otherwise a type mismatch ensues (note that this is empirically supported: clause-internal subjects in copular sentences must be pronouns)
- so in this case, the pronoun contextually refers to the property of being, e.g., them; i.e., $\lambda x[x = them]$

$[\![\text{la}]\!] = \lambda p \lambda Q \lambda g[Q(\iota x[p(g^{x/n})])]$

(40)



(41)



NB: $\lambda Q \lambda g[Q(\iota x[g^{x/5}(5) = g(2)])] \leftrightarrow \lambda Q \lambda g[Q(\iota x[x = g(2)])] \leftrightarrow \lambda Q \lambda g[Q(g(2))]$