



Where and why are labels necessary? *

Michael Barrie, Sogang University

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1 Nutshell

1.1 Empirical

- patterns of number marking in pseudo noun incorporation
- some language allow plural marking in PNI - others don't
- can be explained by labelling and projecting versus non-projecting number

1.2 Theoretical

- Labels are not needed at LF or PF
- They are needed, however, but in syntax only
- The Labelling Algorithm must be modified to account for non-projecting heads

2 Background

- main questions: What are labels for?
- Are they necessary in syntax, PF, LF? or not at all?

2.1 Chomsky and Labels

- Labelling Algorithm (Chomsky, 2008, 2013, 2015)

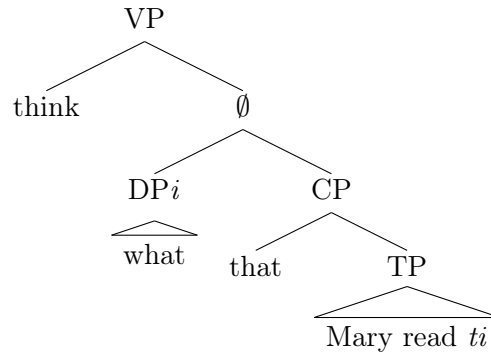
- (1) a. Merge (H,XP) \rightarrow H is label
b. Merge (YP,XP) \rightarrow depends
 - (i) no feature in common - unlabelled
 - (ii) F in common - label is $\langle F, F \rangle$

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- If a phrase moves out of an unlabelled structure, the element that remains labels the remaining structure.
- Long-distance *wh*-movement

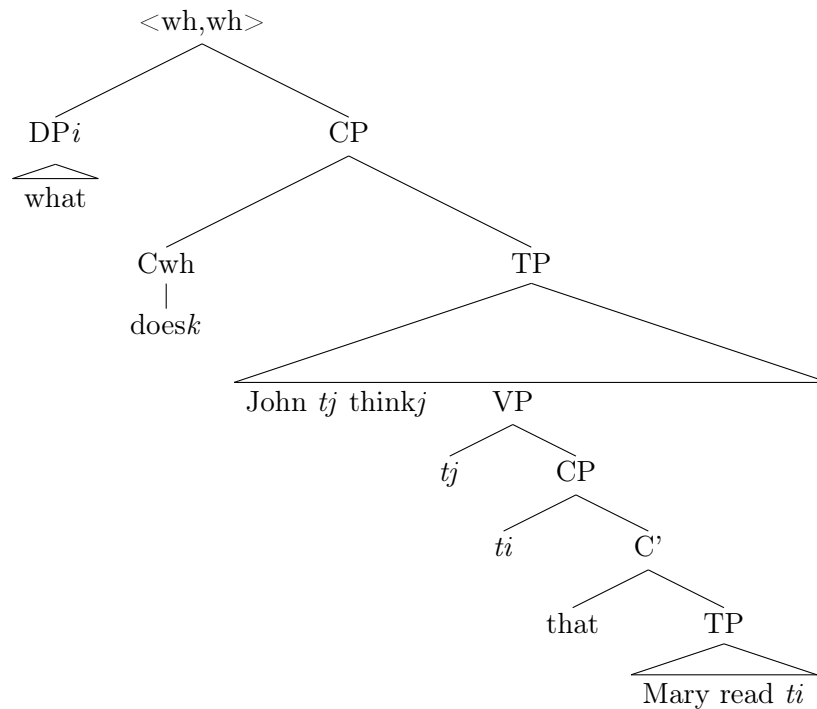
(2) What does John think that Mary read?

(3)



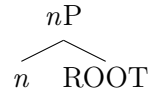
- Merge (DP, CP) creates an unlabellable object

(4)



- Once DP vacates lower CP only C' is left → C is label (called CP for convenience)
- DP (with wh-feature) merges with CP (with wh-feature) → label is <wh,wh>
- most recently: Merge (X, Y) → one of X or Y is a root
- Roots are too impoverished to have a label
- Marantzian categorizing head projects

(5)



- final ingredient: T (in English) is also too weak to label product of Merge (T, vP)
- Subject in SpecTP gives label of $\langle \phi, \phi \rangle$

2.2 Eliminating Labels

- Collins (2002) proposes to eliminate labels altogether
- of concern are the following
 - subcategorization
 - PF interface
- subcategorization \rightarrow reconfigured as Agree
- Probe searches for Goal
- In most cases Goal is the sister \rightarrow subcategorization looks like selection
- Some cases of long-distance subcategorization

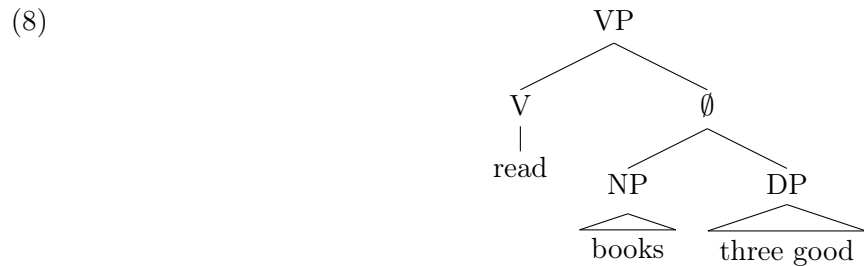
- (6)
- a. John said that Bill left.
 - b. John demanded that Bill leave.

- Assume CP > MoodP > TP
- *say* subcategorizes for indicative mood
- *demand* subcategorizes for subjunctive mood
- V subcategorizes for Mood (bypassing CP)
- PF interface - labels needed for phrasal phonology?
- PF rules make reference to VP or NP
- proposes that such rules can be re-phrased in terms of phases or multiple spell-out
- not in line with Math Theory, which makes reference to maximal projections (Selkirk, 2011, 2009; Elfner, 2015).
- in line with Phase = Prosodic Constituent Hypothesis (Kahnemuyipour, 2009; Newell, 2008)

2.3 Labels and Movement

- Ott (2015) proposes that points of symmetric Merge (label-less phrases) force movement
- goes back to Moro (2000)
- assumption: label is required for something
- examines split topics in German

(7) Bücher hat Peter leider erst drei gute gelesen.
 books has Peter unfortunately only three good read
 ‘As for books, Peter has unfortunately only read three good ones.’



- Overt movement why?
- If label is required only at LF, then we should expect to find some cases of LF movement to resolved label-less constituents
- evidence not forthcoming
- Moro (2009) offers the following argument
- Italian does not require an overt subject in TP - no EPP
- subject can remain in situ

(9) Sono arrivati gli studenti.
 are arrived the students
 ‘The students have arrived.’

- subject of predicate nominal must raise.

(10) a. [una foto del muro] è [t [la causa della rivolta]]
 [a picture of.the wall] is [t the cause of.the riot]]
 ‘A picture on the wall is the cause of the riot.’

b. [la causa della rivolta] è [[una foto del muro] t]
 the cause of.the riot is a picture of.the wall t
 ‘A picture on the wall is the cause of the riot.’

c. *pro è [[una foto del muro] [la causa della rivolta]]
 pro is a picture of.the wall the cause of.the riot
 (‘A picture of the wall is the cause of the riot.’)

- If labels matter only at LF, LF movement should repair (10-c)
- Takita (2019) also argues against the necessity of labels at LF
- argues that labels are necessary at PF for linearization
- argues that long-distance wh-movement

(11) What does John think <what> that Mary bought <what>?

- intermediate copy creates an unlabelable constituent - no feature in common.
- must raise and delete
- crucially, linearization not possible between intermediate <what> and C'

(12) Linearization rule for SOs labeled as <F,F>: <F,F> XPF[val], YPF[unval] → <XP, YP>
(Takita, 2019)

- problem for wh-copy constructions

(13) Was denkst du, was wir essen sollen?
what think you, what we eat should
'What do you think we should eat?'

2.4 Labels and Linearization

2.5 Labels and the Universal Spine Hypothesis

- If labels are not needed at LF or PF - needed only at syntax (to drive computation)
- Wiltschko (2008, 2014) proposes that only some heads project
- several diagnostics given, only one shown here
- projecting and non-projecting number

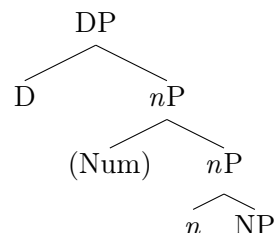
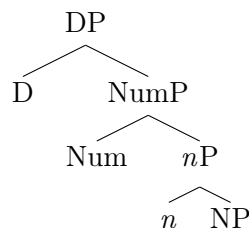
(14) Salish Number (Gillon, 2013, p.17)

a. push
cat
'cat/cats'

b. pesh-push
REDUP-cat
'cats'

- proposes that Num adjoins to *n* (or some other projection) in Salish
- Num projects in English

(15)



2.6 Summary

- will adopt Wiltschko
- labels needed in syntax for selection
- head can still select an unlabelled constituent
- no label - no violation of selectional restriction
- label must(?) be created by Spell-Out and must conform to selectional restriction
- Chomsky: T is weak (in English) - does not provide label
- Perhaps Num is weak in Salish - does not provide label
- will consider in light of pseudo noun incorporation
- will first consider DP/KP structure

3 Labels and the CP/KP divide

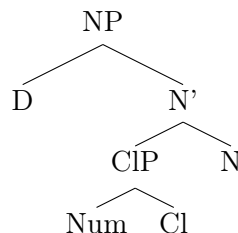
- Parallelism between the extended verbal domain and the extended nominal domain (Abney, 1987; Ogawa, 2001; Megerdooimian, 2008).
- aka DP Hypothesis

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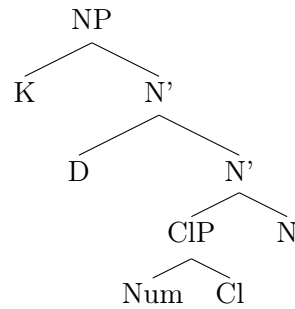
- extended nominal domain: articulated structure goes well beyond simple parallelism between CP and KP (Ritter, 1991, 1992; Kramer, 2015; Picallo, 1991; Szabolcsi, 1983)
- recent arguments against DP theory
- precursor: Baker (1996) tacitly assumes a flat structure for nominals and an articulated structure for clauses → needed for head movement analysis of noun incorporation
- Bruening et al. (2018): DP Hypothesis is wrong
- They propose that nominals are NPs (aka NP Hypothesis)

(17)



- Bruening et al. (2018) do not consider K
- would look something like the following

(18)

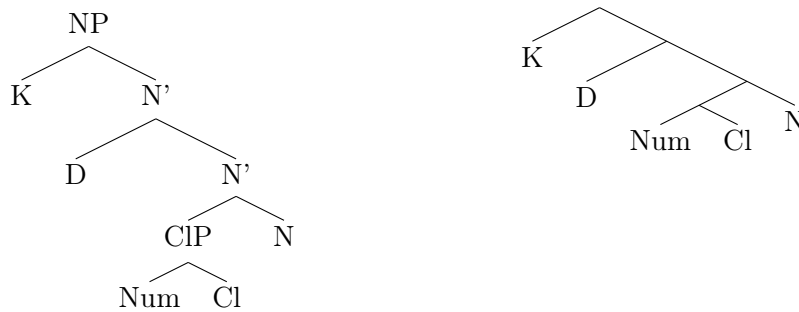


- Let's compare the labelled and unlabelled forms of the DP and NP Hypothesis side-by-side

(19) DP Hypothesis



(20) NP Hypothesis



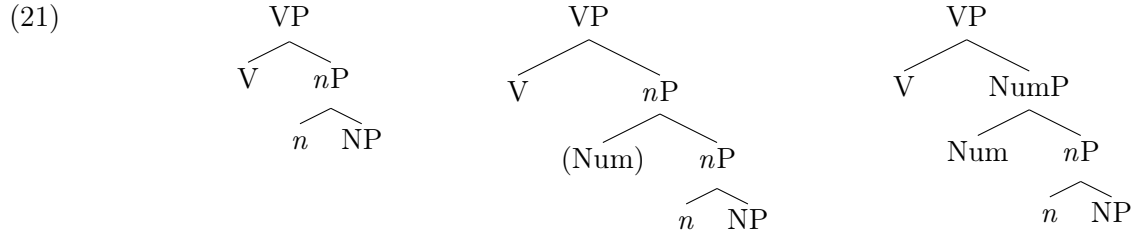
- Completely unlabelled structures virtually indistinguishable
- Projecting and non-projecting heads make different predictions

4 Predictions with Pseudo Noun Incorporation

- PNI largely thought to involve a nominal XP larger than N (Massam, 2001; Dayal, 2011, 2015)
- Following earlier work, I assume size of PNI object can vary (Barrie and Mathieu, 2012)

- 1 *nP* (in lg with projecting Num)
- 2 *nP* (in lg with non-projecting Num)

3 NumP



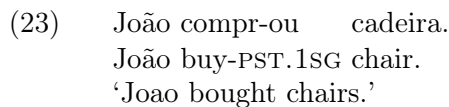
- *nP* (projecting Num) - always number neutral, no number marking in PNI
- *nP* (non-projecting Num) - number neutral when plural marker is absent, plural interpretation when plural marker is present
- NumP - no number neutrality

4.1 Brazilian Portuguese

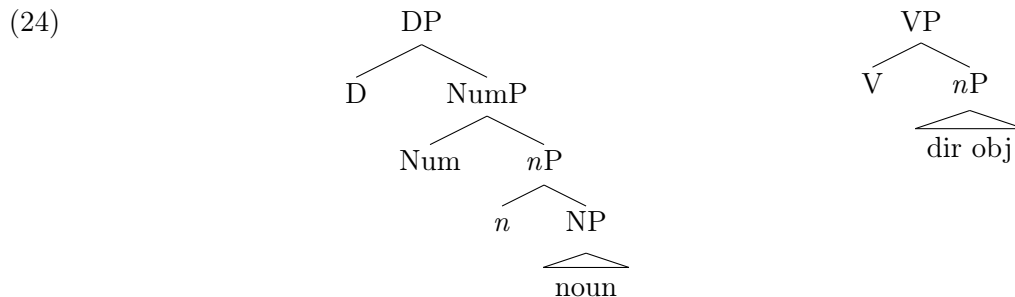
- Brazilian Portuguese has projecting number (as in Portuguese in general).



- BP also has bare singular NPs (Braga et al., 2010; Oliveira and Rothstein, 2011)
- following example: number neutrality (Oliveira and Rothstein, 2011, p.2154)



- Full DP contains NumP
- V can pseudo incorporate a bare *nP*
- NumP is missing, so number is interpreted contextually



4.2 Hindi

- Hindi has obligatory number marking (Dayal, 2015, p.49)

(25) anu bacce-ko sambhaaltii hai
 Anu child-ACC manages
 ‘Anu looks after the child.’

- PNI object can appear with number marking

(26) a. anu baccaa sambhaaltii hai
 Anu child manages
 ‘Anu looks after children.’

b. anu bacce sambhaaltii hai
 Anu children manages
 ‘Anu looks after children.’

- Dayal (2011, 2015) shows that number neutrality in Hindi is illusory
- number interpretation interacts with aspect
- PNI arises by verb selecting bare NumP
- crucial example (Dayal, 2015, p.67)

(27) anu-ne tiin ghanTee meN *kitaab ikaTTa-karlii / kitaabeN ikaTTThaa-harliiN
 Anu-ERG 3 hours in book collected-COMPL / books collected-COMPL
 ‘Anu got done collecting *a book/books in three hours.’



4.3 Nepali

- Nepali has differential object marking (field work with Sihun Jung)
- Nepali also has optional number marking
- If PL is present - plural interpretation
- If PL is absent - number neutral

(29) sundaalaa sundaalaa-haru
 orange orange-PL
 ‘orange(s)’ / ‘oranges’

- Direct objects without case obligatorily take low scope and tend to be very close to the verb

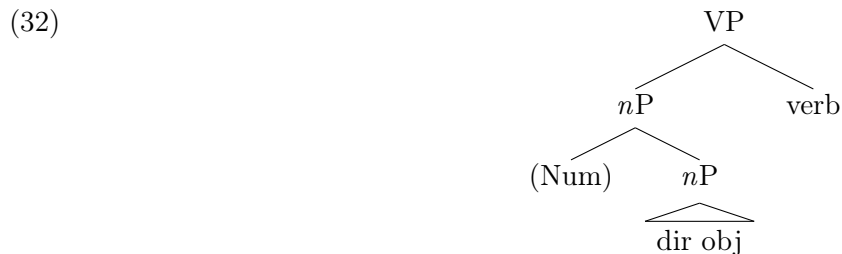
- typical characteristics of pseudo noun incorporation
- note: Inanimate nouns usually don't appear with an overt case marker

- (30)
- Bibek-le Ashmi-laai kitaab dekot^hijo.
Bibek-ERG Ashmi-DAT book gave
'Bibek gave Ashmi a book.'
 - Ashmi-laai Bibek-le kitaab dekot^hijo
Ashmi-DAT Bibek-ERG book gave
'Bibek gave Ashmi a book.'
 - *kitaab Ashmi-laai Bibek-le dijo
book Ashmi-ERG Bibek-DAT gave
('Bibek gave Ashmi a book.')
 - Ashmi-laai *(tjo) kitaab Bibek-le dekot^hijo
Ashmi-DAT *(DEM) book Bibek-ERG gave
'Bibek gave Ashmi that book.'

- PNI objects are indefinite
- plural marker found in PNI constructions
- CAVEAT: only one found so far - will test more

- (31)
- Bibek-laai maantse-laai maarnu manlagi aitsha.
Bibek-DAT man-DAT kill.INF want AUX
'Bibek wants to kill the/a man.'
 - Bibek-laai maantse maarnu manlagi aitsha.
Bibek-DAT man kill.INF want AUX
'Bibek wants to kill a man.'
- (i) Ashmi-le keraa-haru kaaidjo
Ashmi-ERG banana-PL ate
'Ashmi ate bananas.'

- Nepali pseudo incorporates an *nP*
- Num merges with *nP*, but does not provide a label



5 Discussion

- Labels are not needed at LF or at PF
- They are needed in the syntax only
- Certain heads are strong and project - others are weak and don't project
- Projecting and non-projecting heads are diagnosed through their semantic properties (Wiltschko, 2008, 2014)
- This hypothesis was tested with PNI
- pattern of plural marking in PNI objects conforms to hypothesis
- Labels are needed for selection in syntax

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