

# Focus size in morphologically focus-marking languages

Muriel Assmann, Daniel Büring,  
Izabela Jordanoska, Max Prüller

University of Vienna  
FWF Project P 29180-G23 “Unalternative Constraints Cross-Linguistically”, Vienna  
`unalternatives.project@univie.ac.at`

NELS 2018

**FWF**

Der Wissenschaftsfonds.

# Outline

## Some Background on Focus

Background

Ways of Modelling Ambiguities

## West African languages

Hausa

Buli

Guruntum



# Some Terminology

(1) JOHN ate all the muffins.



## Some Terminology

- (1) (Mary ate all the MUFfins.)  
No, JOHN ate all the muffins.

## Some Terminology

- (1) (Mary ate all the MUFfins.)  
No, JOHN ate all the muffins.

TARGET

“John” introduces a **non-trivial alternative**.

The other words introduce **trivial alternatives** (their literal meaning).



## Some Terminology

- (1) (Mary ate all the MUFfins.)  
 No, JOHN ate all the muffins.

“John” introduces a **non-trivial alternative**.

The other words introduce **trivial alternatives** (their literal meaning).

- (2) Focality:
- a. A terminal node is focal iff it introduces non-trivial alternatives.
  - b. A non-terminal node is focal iff any of its daughters is.

## Focus Ambiguities in English.

(3) Mary bought a book about BATS.

PP focus

(4) MARY bought a book about bats.

subject focus

## Focus Ambiguities in English.

(3) Mary bought a book about BATS.

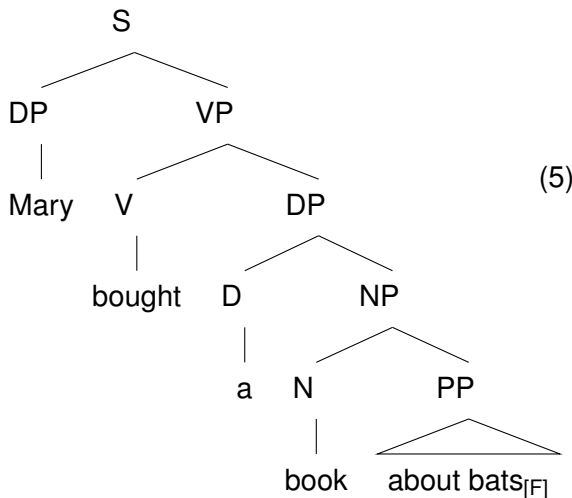
PP focus  
or object focus, predicate focus, sentence focus

(4) MARY bought a book about bats.

subject focus



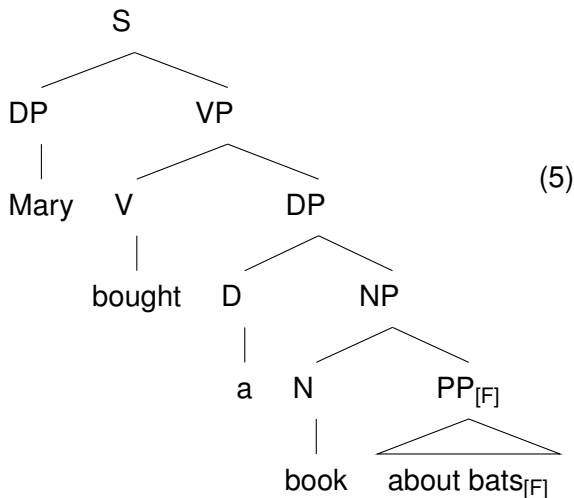
# F Marking



Selkirk 1995[5]:

- a. Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- b. Head<sub>F</sub> allows Phrase<sub>F</sub>

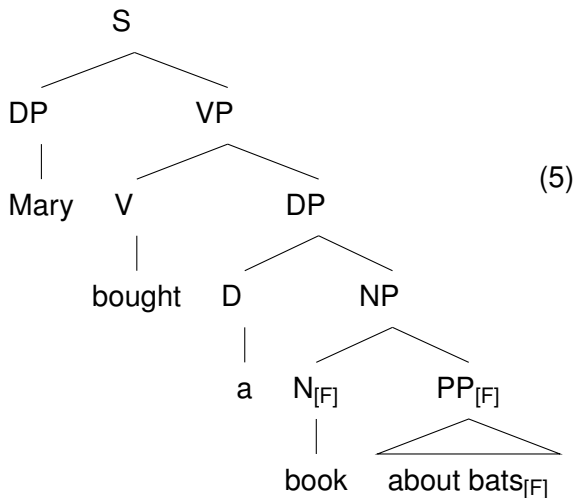
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

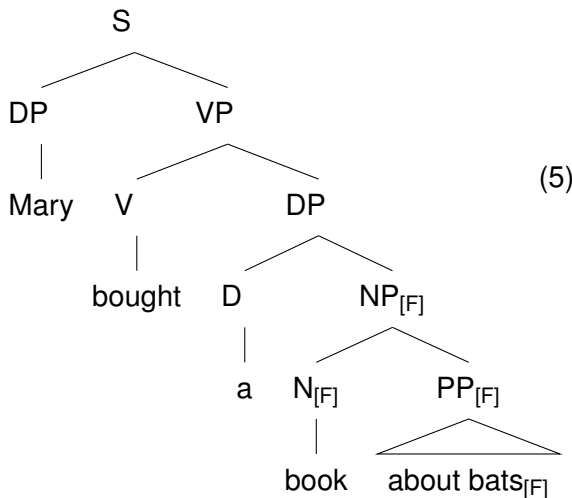
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

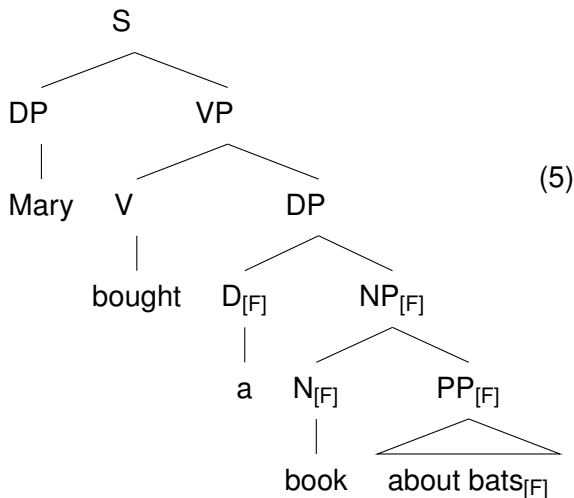
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

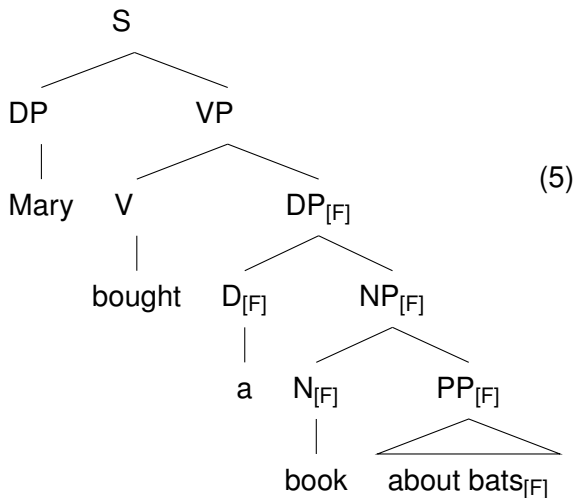
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

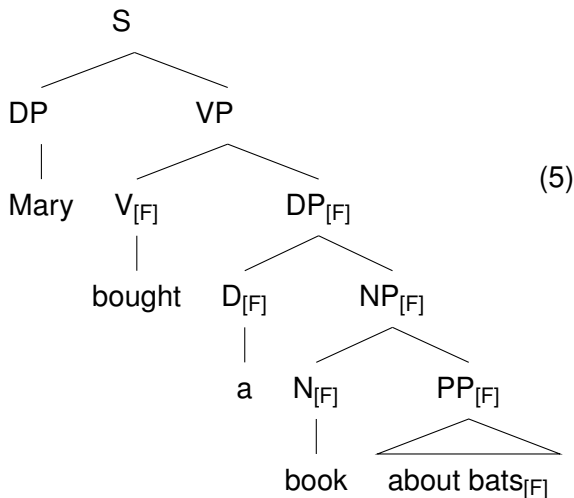
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

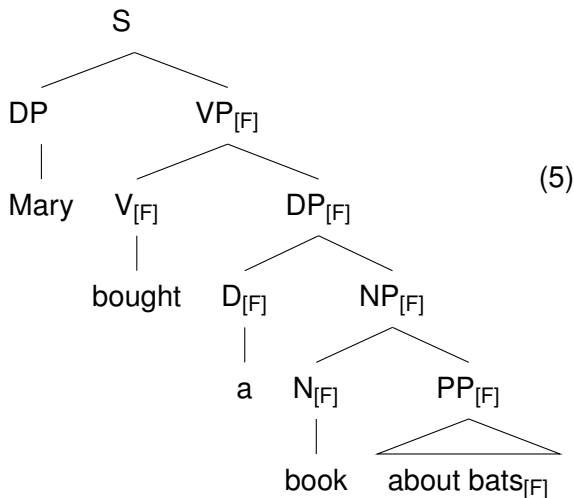
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

# F Marking

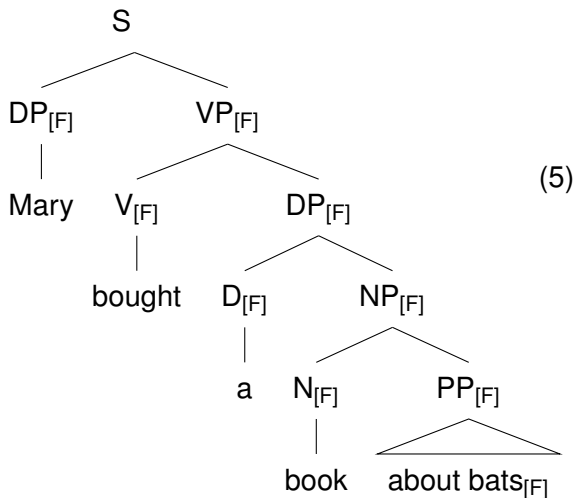


Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>



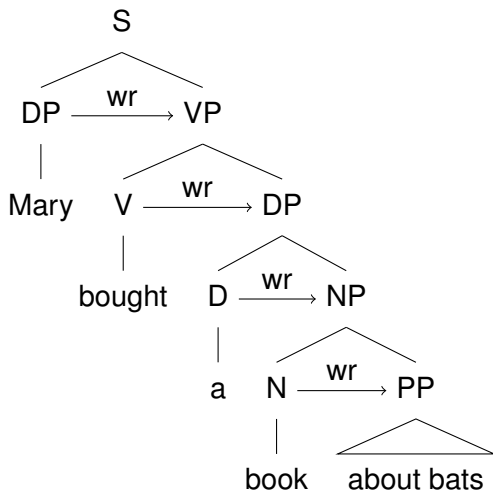
# F Marking



Selkirk 1995[5]:

- Internal Argument<sub>F</sub> allows Head<sub>F</sub>
- Head<sub>F</sub> allows Phrase<sub>F</sub>

## Unalternative Semantics



(6)  $A \xrightarrow{wr} B$ :

A can only be focal if B is.

(7)  $A \xrightarrow{sr} B$ :

B is focal, A isn't.

(8) Every sentence is focal.

## Subject focus does its own thing in Hausa.

- (9) (What happened?/What did Kande do?/What did Kande do with the fish?/What did Kande cook?)

Kandè taa dafá kiifi.

K. 3sg.perf cook fish

'Kande cooked the fish.'

not subject focus

([2]:3)

- (10) (Who is cooking the fish?)

Kandè **cee** ta-kèè dafá kiifi.

K. FOC 3SG-REL.IPFV cook fish

'Kande is cooking the fish.'

subject focus

([2]:3)

## Part-of-subject-focus behaves like subject focus

(11) (A: 'A black horse kicked the child')

B: A'a, fariin dookìi nèè ya shuri yaaròo-n.

no, white horse FOC 3SG.M.REL.PF kick boy-DEF

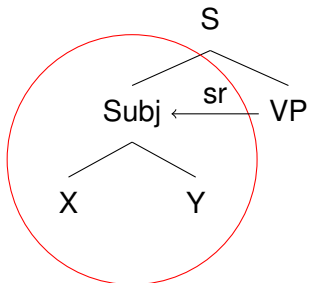
'No, a [white]<sub>F</sub> horse kicked the child.'

part-of-subject focus marked like subject focus

## Hausa subject focus

- (12) **Kandè cee ta-kèè**                      dafá kiifi.  
 K.        FOC 3SG-REL.IPFV cook fish  
 'Kande is cooking the fish.'

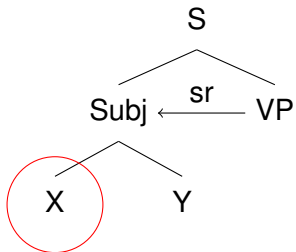
subject focus



## Hausa subject focus

- (12) **Kandè cee ta-kèè**                      dafá kiifi.  
 K.        FOC 3SG-REL.IPFV cook fish  
 'Kande is cooking the fish.'

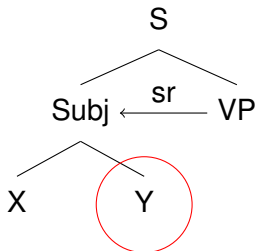
subject focus



## Hausa subject focus

- (12) **Kandè cee ta-kèè**            dafá kiifi.  
 K.     FOC 3SG-REL.IPFV cook fish  
 'Kande is cooking the fish.'

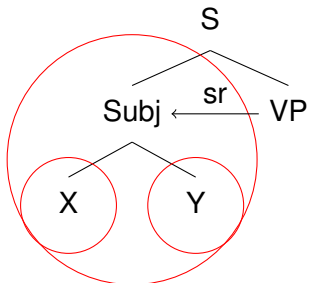
subject focus



## Hausa subject focus

- (12) **Kandè cee ta-kèè**                      dafá kiifi.  
 K.        FOC 3SG-REL.IPFV cook fish  
 'Kande is cooking the fish.'

subject focus

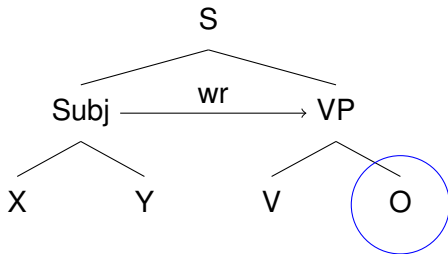




## Hausa nonsubject focus

- (13) *Kandè taa dafá kiifii.*  
 K. 3sg.perf cook fish  
 'Kande cooked the fish.'

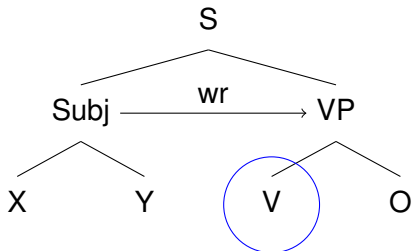
nonsubject focus



## Hausa nonsubject focus

- (13) **Kandè** taa      dafá kiifii.  
 K.      3sg.perf cook fish  
 'Kande cooked the fish.'

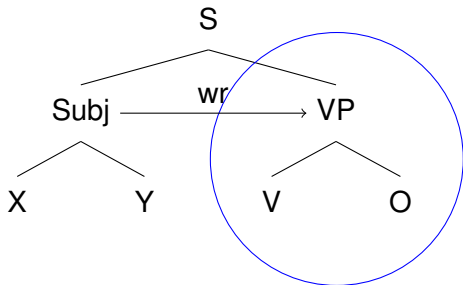
nonsubject focus



## Hausa nonsubject focus

- (13) **Kandè** taa      dafá kiifii.  
 K.      3sg.perf cook fish  
 'Kande cooked the fish.'

nonsubject focus



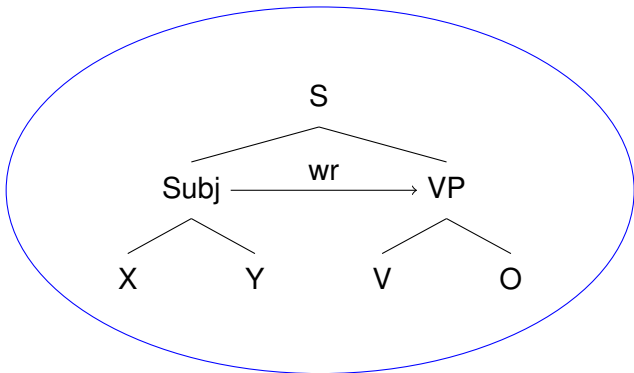
## Hausa nonsubject focus

(13) **Kandè** taa      dafá kiifii.

**K.**      3sg.perf cook fish

‘Kande cooked the fish.’

nonsubject focus



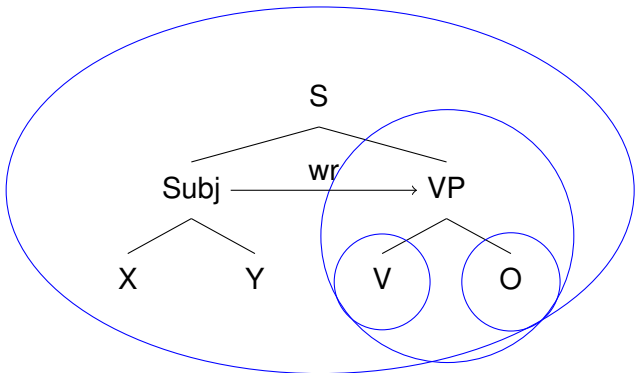
## Hausa nonsubject focus

(13) *Kandè taa dafá kiifii.*

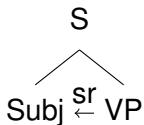
K. 3sg.perf cook fish

'Kande cooked the fish.'

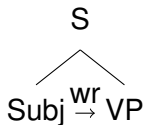
nonsubject focus



# Hausa focus constellations



Subject focus marking



VP focus marking

## Buli: Subject focus is ambiguous with sentence focus, S+V focus

- (14) (Why are you angry?  
Who ate a mango?)  
(Ká) Àtìm **alè** dè mángó  
(FOC) A. FOC ate mango  
'Atim ate a mango.' subject or sentence focus
- (15) (Can I borrow your car?)  
Aáya, biik **alé** zú logni.  
no, child FOC steal car  
'No, a child stole it.' S+V focus

## Buli: O=VP,V

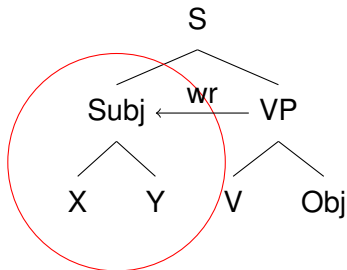
- (16) (Is he bringing or sending the table?)  
 wá-tàā chèn **kámā** 'He's sending it.' verb focus  
 1-have:IPFV go FOC  
 ([4])
- (17) (What did Atim do?  
 What did Atim eat?)  
 wá dè **ká** mángó  
 3SG ate FOC mango  
 'He ate a mango.' O, VP focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mángó  
 (FOC) A. FOC ate mango  
 'Atim ate a mango.'

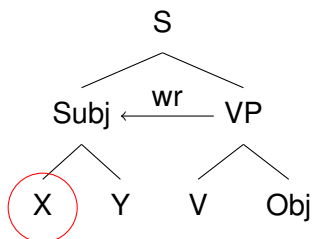
subject or sentence focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mángó  
(FOC) A. FOC ate mango  
'Atim ate a mango.'

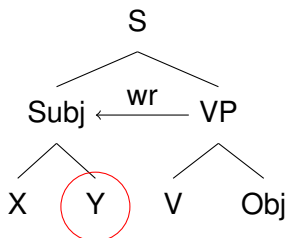
subject or sentence focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mángó  
 (FOC) A. FOC ate mango  
 'Atim ate a mango.'

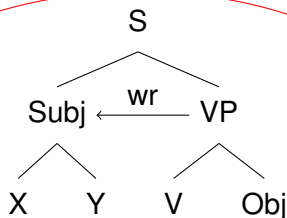
subject or sentence focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mángó  
 (FOC) A. FOC ate mango  
 'Atim ate a mango.'

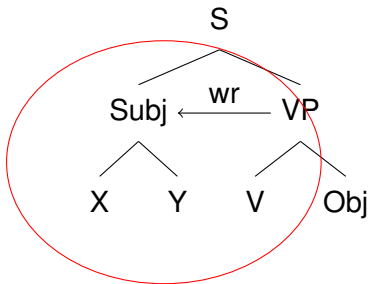
subject or sentence focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mángó  
(FOC) A. FOC ate mango  
'Atim ate a mango.'

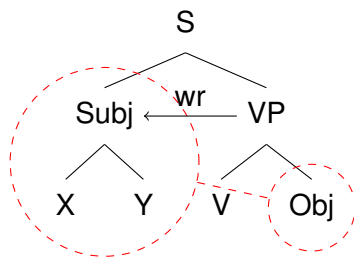
subject or sentence focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mánɡó  
 (FOC) A. FOC ate mango  
 'Atim ate a mango.'

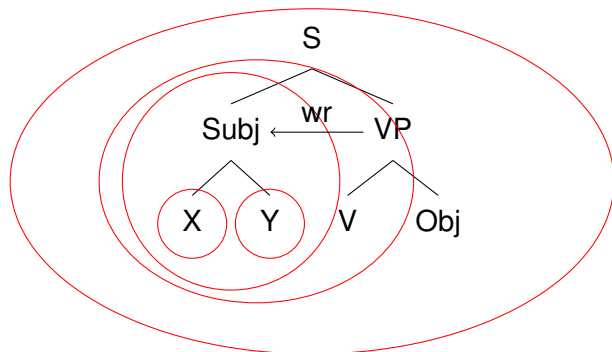
subject or sentence focus



## Buli Subject and Sentence focus

- (18) (Ká) Àtìm **alè** dè mángó  
 (FOC) A. FOC ate mango  
 'Atim ate a mango.'

subject or sentence focus



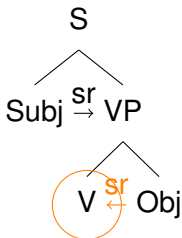
## Buli VP-internal focus

- (19) wá-tàā chèn **kámā**  
1-have:IPFV go FOC  
'He's sending it.'

verb focus

- (20) wá dè **ká** mánɡó  
3SG ate FOC mango  
'He ate a mango.'

O, VP focus





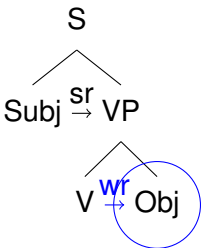
## Buli VP-internal focus

- (19) wá-tàā chèn **kámā**  
1-have:IPFV go FOC  
'He's sending it.'

verb focus

- (20) wá dè **ká** mángó  
3SG ate FOC mango  
'He ate a mango.'

O, VP focus



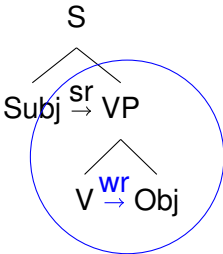
## Buli VP-internal focus

- (19) wá-tàā chèn̄ **kámā**  
1-have:IPFV go FOC  
'He's sending it.'

verb focus

- (20) wá dè **ká** mán̄gó  
3SG ate FOC mango  
'He ate a mango.'

O, VP focus



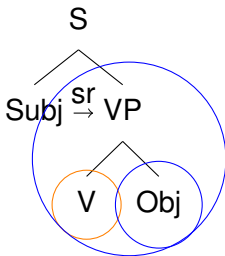
## Buli VP-internal focus

- (19) wá-tàā chèn **kámā**  
 1-have:IPFV go FOC  
 'He's sending it.'

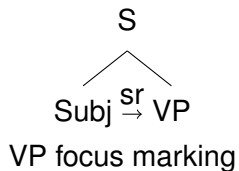
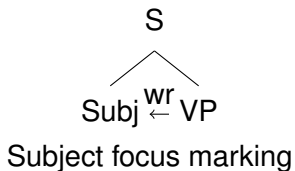
verb focus

- (20) wá dè **ká** mángó  
 3SG ate FOC mango  
 'He ate a mango.'

O, VP focus



## Buli focus constellations



## Subject and VP focus in Guruntum

- (21) (Who is chewing the Cola nut?)  
 Á fúrmáyò bà wúm kwálingálá  
 FOC Fulani PROG chew Cola nut  
 'The Fulani is chewing Cola nut.' (part-of?)-subject  
 focus  
 ([3]:1342)
- (22) (What is he doing?)  
 What is he doing with the Cola nut?  
 What is he chewing?)  
 Tí bà wúm-á kwálingálá  
 3SG PROG chew-FOC Cola nut  
 'He is chewing Cola nut.' (part-of-)VP focus  
 ([3]:1347)

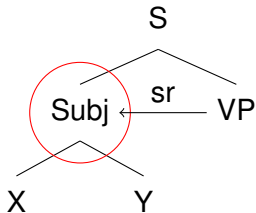
## Sentence focus is unambiguous

- (23) (What's happening?)  
 Tí bà wúm kwálingálá  
 3SG PROG chew Cola nut  
 'He is chewing Cola nut.'  
 ([3]:1341)

sentence focus

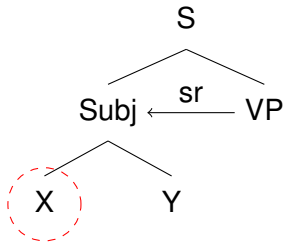
## Guruntum subject focus

- (24) **Á** fúrmáyò bà wúm kwálingálá  
 FOC fulani PROG chew Cola nut  
 'The fulani is chewing Cola nut.' (part-of?) subject focus



## Guruntum subject focus

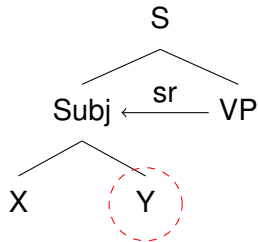
- (24) **Á** fúrmáyò bà wúm kwálingálá  
 FOC fulani PROG chew Cola nut  
 'The fulani is chewing Cola nut.' (part-of?) subject focus





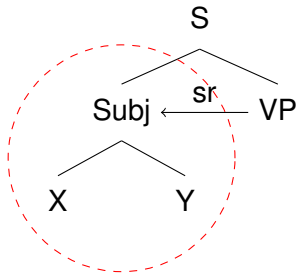
## Guruntum subject focus

- (24) **Á** fúrmáyò bà wúm kwálingálá  
 FOC fulani PROG chew Cola nut  
 'The fulani is chewing Cola nut.' (part-of?) subject focus



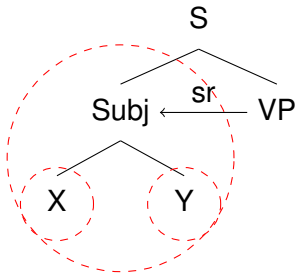
## Guruntum subject focus

- (24) **Á** fúrmáyò bà wúm kwálingálá  
 FOC fulani PROG chew Cola nut  
 'The fulani is chewing Cola nut.' (part-of?) subject focus



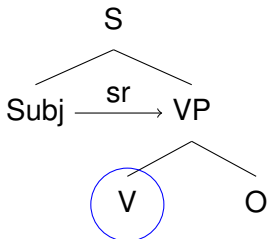
## Guruntum subject focus

- (24) **Á** fúrmáyò bà wúm kwálingálá  
 FOC fulani PROG chew Cola nut  
 'The fulani is chewing Cola nut.' (part-of?) subject focus



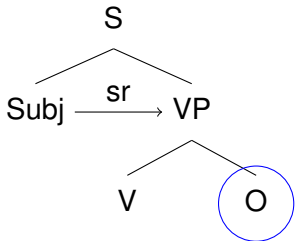
## Guruntum VP focus

- (25) Tí bà wúm-á kwálingá  
 3SG PROG chew-FOC Cola nut  
 'He is chewing Cola nut.' (part-of-)VP focus



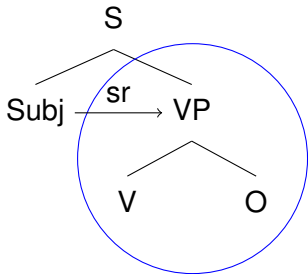
## Guruntum VP focus

- (25) Tí bà wúm-á kwálingá  
 3SG PROG chew-FOC Cola nut  
 'He is chewing Cola nut.' (part-of-)VP focus



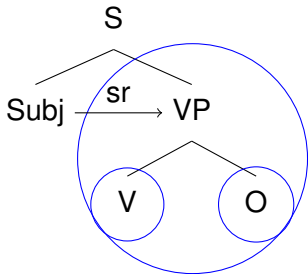
## Guruntum VP focus

- (25) Tí bà wúm-á kwálingá  
 3SG PROG chew-FOC Cola nut  
 'He is chewing Cola nut.' (part-of-)VP focus



## Guruntum VP focus

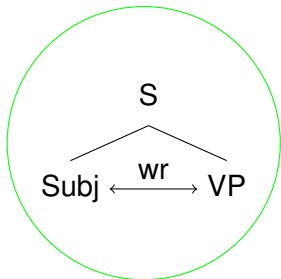
- (25) Tí bà wúm-á kwálingá  
 3SG PROG chew-FOC Cola nut  
 'He is chewing Cola nut.' (part-of-)VP focus



## Guruntum sentence focus

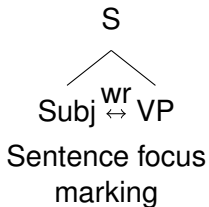
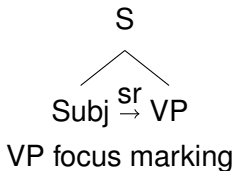
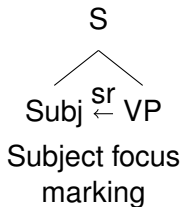
- (26) Tí bà wúm kwálingá  
 3SG PROG wúm kwálingá.  
 'He is chewing Cola nut.'

sentence focus



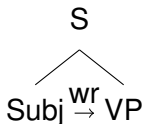
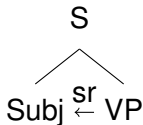


## Guruntum focus constellations

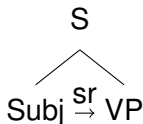
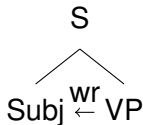


## Possible constellations

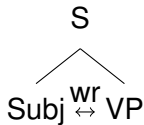
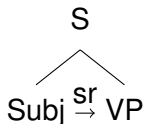
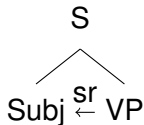
Hausa



Buli



Guruntum



## 3 observations

- For every constellation of focused constituents there's exactly one way of marking it.
- Sentence focus can be uniquely expressed. VP focus cannot.
- There can be only one focus marker.

## 3 observations

- For every constellation of focused constituents there's exactly one way of marking it.
- Sentence focus can be uniquely expressed. VP focus cannot.
- There can be only one focus marker.  
(Or, more precisely, only one focus can be marked.)

## Formal Definitions I

All adapted from Büring [1]

- (27) *alt.dom*: For any node  $N$ ,  $alt.dom(N)$  is the set of alternatives in the domain of  $\llbracket N \rrbracket_{\mathcal{O}}$ .
- (28)  $\otimes$ : For any pair of sets of meanings  $A, B$ ,  $A \otimes B = \{f(a)(b) \mid a \in A \wedge b \in B\}$ , where  $f$  is the usual way of deriving the meaning of a node whose daughters have meanings of the same types as  $(a)$  and  $(b)$ .
- (29)  $\llbracket N \rrbracket_{\mathcal{O}}$ : For any node  $N$ ,  $\llbracket N \rrbracket_{\mathcal{O}}$  is the ordinary meaning of  $N$ .
- (30)  $\llbracket N \rrbracket_{\mathcal{U}}$ : For any node  $N$ ,  $\llbracket N \rrbracket_{\mathcal{U}}$  is the set of unalternatives of  $N$ . (We use these later to get the correct focal target.)

## Formal Definitions II

(31) WEAK RESTRICTION: For any node  $\alpha$  s.t.  $N_1 \xrightarrow{\text{wr}} N_2$ ,  
 $(\text{alt.dom}(N_1) \setminus \{\llbracket N_1 \rrbracket_{\mathcal{O}}\}) \otimes \{\llbracket N_2 \rrbracket_{\mathcal{O}}\} \subset \llbracket \alpha \rrbracket_{\mathcal{U}}$

(32) STRONG RESTRICTION: For any node  $\alpha$  s.t.

$\alpha$

$N_1 \xrightarrow{\text{sr}} N_2$ ,  $\text{alt.dom}(\alpha) \setminus ((\text{alt.dom}(N_2) \setminus \{\llbracket N_2 \rrbracket_{\mathcal{O}}\}) \otimes \{\llbracket N_1 \rrbracket_{\mathcal{O}}\}) \subset \llbracket \alpha \rrbracket_{\mathcal{U}}$

(33) PROPAGATION: For any branching node  $[\alpha \ D_1 \ D_2]$ ,  
 $\text{alt.dom}(D_1) \otimes \llbracket D_2 \rrbracket_{\mathcal{U}} \subset \llbracket \alpha \rrbracket_{\mathcal{U}} \wedge \text{alt.dom}(D_2) \otimes \llbracket D_1 \rrbracket_{\mathcal{U}} \subset \llbracket \alpha \rrbracket_{\mathcal{U}}$

## Formal Definitions III

(34) For any terminal node  $T$ ,  $\llbracket T \rrbracket_{\mathcal{U}} = \{\}$ .




S'



(35)  $S \sim C$  is well-formed only if there is a value  $\alpha$  for  $C$  s.t.  $\alpha$  contains at least one element that is neither an unalternative, nor the literal meaning, of  $S$ .

(36) Every root node has a sister  $\sim C$ .

## Bibliography I

-  Daniel Buring. “Unalternative Semantics”. In: *Proceedings of SALT 25*. 2015, pp. 550–575. DOI: <http://dx.doi.org/10.3765/salt.v25i0.3634>.
-  Katharina Hartmann and Malte Zimmermann. “In Place—Out of Place: Focus in Hausa”. In: *Information Structure and the Architecture of Grammar: A Typological Perspective*. Ed. by Kerstin Schwabe and Susanne Winkler. Amsterdam: John Benjamins, 2007, pp. 365–403.
-  “Morphological focus marking in Gùrùntùm (West Chadic)”. In: *Lingua* 119.9 (2009), pp. 1340–1365.



## Bibliography II



**Anne Schwarz.** “QUIS Data from Buli, Konni and Baatonum: With Notes on the Comparative Approach”. In: *Linguistic Fieldnotes III: Information Structure in Gur and Kwa Languages. Interdisciplinary Studies on Information Structure 16*. Ed. by Svetlana Petrova and Mira Grubic. Potsdam: Universitätsverlag Potsdam, 2011.



**Elisabeth Selkirk.** “Sentence Prosody: Intonation, Stress, and Phrasing”. In: *The Handbook of Phonological Theory*, pp. 550–569.