# Linearizing final complementizers in head-initial languages
## *The case of Medumba*

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## 1. Introduction

- In English, the high position of complementizers in the subordinate/embedded clause corresponds to their initial position in linear order

(1) [CP1 The meteorologist predicts [CP2 **that** it will be sunny all weekend]]
(2) [CP1 The dog [CP2 **that** chased the ducks in the park] wagged its tail]

- The Linear Correspondence Axiom (LCA; Kayne, 1994) captures the relation between underlying hierarchical structure and linear order

(3) *Linear Correspondence Axiom* (simplified)
If A asymmetrically c-commands B, A will precede B in the linear surface string.

- Some head-initial languages have final complementizers, indicating that, according to the LCA, the TP should asymmetrically c-command C

(4) *Taiwanese* (Simpson & Wu, 2002:68)

| A-hui | liau-chun | A-sin | si | tai-pak | lang | **kong** |
|---|---|---|---|---|---|---|
| Ahui | think | Asin | is | Taipei | person | C |

'Ahui thought that Asin is from Taipei.'

- Some languages have two complementizers in the same clause, raising questions about the status and linearization of the C-like elements

(5) *Medumba*[1]

| á | bhòó | **ndà** | nùmí | ʒúù | ʒú | **lá** |
|---|---|---|---|---|---|---|
| 3SG | be.good | C | Numi | eat | thing | C |

'It is good that Numi ate something.'

[1] I thank Hermann Keupdjio for judgments of the Medumba data. Part of the data was elicited during the Winter 2017/18 Field Methods course at UBC Vancouver, Canada, supervised by Rose-Marie Déchaine, and presented at ACAL 49 (cf. Gatchalian, Lee & Tyrchan, 2018)

- According to Kayne (1994), head-finality is derived from underlying Spec-Head-Complement order via movement of the complement
- Rules out right-adjunction approaches to final complementizers: drawing a tree to the right does not change c-command relations

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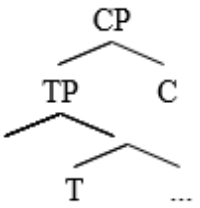



- Final complementizers in head-initial languages also potentially challenge FOFC

(7) *The Final-over-Final Condition* (Biberauer, Holmberg & Roberts, 2014:171)
A head-final phrase αP cannot dominate a head-initial phrase βP, where α and β are heads in the same extended projection.

Roadmap:

- Problem A: Linearizing final or multiple complementizers
  - The Medumba C-system and final particles
  - Linearization of final or multiple complementizers in other languages
  - Which approach accounts best for the Medumba data?
- Problem B: Do final complementizers of the Medumba kind violate FOFC?
- Conclusion and Further Questions

## 2. The final complementizer in Medumba

- Medumba is an SVO Grassfields Bantu language spoken in Western Cameroon
- Tone language: distinguishes two level (H, L) and two contour tones, rising (LH) and falling (HL); tone can also be grammatical (often floating H tone)
- Four clause-initial Cs: *mbù* (C.L), *mbùú* (C.LH), *mbúù* (C.HL), and *ndà*
  - *mbúù* (C.HL) and *ndà* obligatorily co-occur with clause-final C (*lá*)
- Relative clauses also require clause-final *lá* (8e)

(8) a. mù lɛ́n **mbù** nzì kʰúʔú tʃʷɛ̀ɛ́t ndʒɛ́ nùmí (*lá)
1SG know C.L envy taro PRES hurt Numi (*C)
Lit. I know that the envy of taro hurts Numi
'I know that Numi is hungry'

b. nùmí ↓tʃúp **mbùú** bù bʰúùm-↓ndɔ́ (*lá)
Numi say C.LH 3PL meet-RECIP (*C)
'Numi said that they should meet.'

c. mù lén **mbúù** nzì kʰúʔú tʃʷèét ndʒé nùmí *(↓**lá)**
1SG know C.HL envy taro PRES hurt Numi *(C)
Lit. I know if the envy of taro hurts Numi.
'I know whether Numi is hungry or not'

d. á bʰòó **ndà** nùmí ʒúù ʒú *(**lá)**
3SG be.good C Numi eat thing *(C)
'It is good that Numi ate something.'

e. mbʰú **zə̀** nùmí ʒwíìn *(**lá)** bàbə́
dog REL Numi buy *(C) bark
'The dog that Numi bought barked'

- the initial Cs can be omitted, but clause-final *lá* must remain overt
  - when C.LH (*mbùú*) is omitted, the H tone persists (9a-a'), indicating that it is a floating grammatical tone introducing deontic modality
  - in contrast, the polarity reading of C.HL (8c) cannot not be recovered when *mbúù* is omitted (9b), and the polarity H tone cannot be added elsewhere in the structure (9b')

(9) a. á bhò **mbùú** nùmí tʃúp nú↓núnə́
3.SG be.good C.LH Numi say truth
lit. It is good that Numi says the truth.
'Numi should say the truth.'

a'. á bhò**ó** nùmí tʃúp nú↓núnə́
3.SG be.good.H Numi say truth
lit. It is good that Numi says the truth.
'Numi should say the truth.'

b. mù lèn nzì kʰúʔú tʃʷèé ndʒé nùmí **↓lá**
1SG know envy taro PRES hurt Num C
Lit. I know the envy of taro hurts Numi (I have not forgotten).
'I know that Numi is hungry.'

b'. *mù lèé**n** nzì kʰúʔú tʃʷèé ndʒé nùmí **↓lá**
1SG know.H envy taro PRES hurt Num C
Intended: 'I know whether Numi is hungry or not.'

- Clause-final *lá* can also be found in sentences with ex-situ focus

(10) a. á nùᵑgè wàtét nɔ́ɔ̀ʔ ⁿ-sʷéèn **lá** (ex-situ focus)
FOC Nuga Watat AGR.AUX N-AGR.sell LA
'NUGA Watat betrayed'

b. wàtét nɔ́ʔ sʷèn á nùᵑgè *lá (in-situ focus)
Watat AUX sell FOC Nuga
'Watat betrayed NUGA'

- Does not indicate that *lá* can be found outside subordinate clauses, as underlying cleft structure shows

(11) à bú á tʃəəŋ **zə** mú tʃʷɛ́ɛ́t m-fáà wù **lá**
it BE FOC food.H REL 1.SG.SBJ PRES N-give 2.SG.OBJ C
'It is the food that I give you'

- Medumba also has final and bipartite Q-particles, indicating unbiased yes/no-questions (*kí*), negatively biased questions (*áá*), positively biased questions (*kù…á*; *kùlá…á*; *…á*; *kùlá …*; *…kə̄)* (Keupdjio & Wiltschko, 2015, 2016), and wh-questions (*a*, copies tone from preceding syllable (Danis, Barnes & O'Connor, 2012))

(12) a. ú ɣùú ↓mbʰú **kí** **[**Keupdjio & Wiltschko 2016:1]
2SG have dog Q
'Do you have a dog?' (unbiased question)

b. ú ɣùú ↓mbʰú **áá**
2SG have dog Q
'Do you have a dog?' (negatively biased question)

c. ú ɣùú ↓mbʰú **kə̄**
2SG have dog Q
'Do you have a dog?' (positively biased question)

d. ú ɣùú ↓mbʰú **á**
2SG have dog Q
'Do you have a dog?' (positively biased question)

e. **kù** ú ɣùú ↓mbʰú **á**
Q 2SG have dog Q
'Do you have a dog?' (positively biased question)

f. **kùlá** ú ɣùú ↓mbʰú **á**
Q 2SG have dog Q
'Do you have a dog?' (positively biased question)

g. **kùlá** ú ɣùú ↓mbʰú
Q 2SG have dog
'Do you have a dog?' (positively biased question)

h. á wú wàtɛ́ɛ́t nɔ́ɔʔ ⁿsʷɛ́ɛ̀n **á** [Keupdjio 2020:1]
FOC who Watat AUX sell Q
'Who did Watat betray?

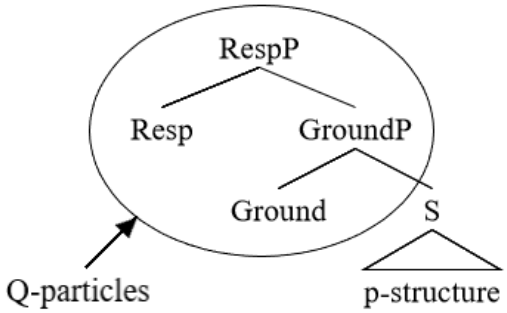
- Complementizer *lá* and the Q-particles seem to be two different types of elements:
  - *lá* only in subordination context and clause-final position (cf. relative clause in 8e)
  - Q-particles combine with simple clauses (12), have matrix scope (13a) and combine with clause-initial Cs that *lá* never co-occurs with (13b)

(13) a. ú lɛ̀n **mbúù** nùmí ɣùú ↓mbhú **lá** **á**
2SG know C.HL Numi have dog C Q
'Do you know whether Numi has a dog?'

b. ú kwɛ̀də̀ **mbù** nzì kúʔú tʃwɛ̀ɛ́t ↓ndʒɛ́ nùmí **kí**
2.SG think C.L envy taro PRES N-hurt Numi Q
lit. Do you think that the envy of taro hurts Numi?
'Do you think that Numi is hungry?'

- Keupdjio & Wiltschko locate the Q-particles in the sentence-peripheral speech-act domain, associated with speaker-hearer interaction (Resp(onse)P) and speaker attitude (GroundP)

(14)




- C.L (*mbù*) can embed clauses with Q-particle(s), C.HL (*mbúù*) can only co-occur with them if they are sentence-peripheral

(15) a. mú bɛ́ttə́ **mbù** **kùlá** ú ɣùú ↓mb$^{h}$ú **á** [K&W 2016]
1SG ask C.L Prt 2SG have dog Q
'I ask: Do you have a dog?'

b. **kùlá** mú bɛ́ttə́ **mbù** ú ɣùú ↓mb$^{h}$ú **á**
Q 1SG ask C.L 2SG have dog Q
'Did I ask whether you have a dog?'

c. *mú bɛ́ttə́ **mbúù** **kùlá** ú ɣùú ↓mb$^{h}$ú **á**
1SG ask C.HL Q 2SG have dog Q
Lit: 'I ask whether do you have a dog'

d. **kùlá** mú bɛ́ttə́ **mbúù** ú ɣùú ↓mb$^{h}$ú **á**
Q 1SG ask C.HL 2SG have dog Q
'Did I ask whether you have a dog'

- these facts suggest a division of the clause-initial complementizers into two groups:
  - C.L (*mbù*) and C.LH (*mbùú*), which select a root CP incl. its own SA structure
  - C.HL (*mbúù*) and *ndà*, which introduce subordinate clauses and select a TP

(16) a. [$_{\text{SA-structureP}}$ [$_{\text{CP1}}$ … V [mbù/mbùú [$_{\text{SA-structureP}}$ [$_{\text{CProot}}$ …]]]]]
b. [$_{\text{SA-structureP}}$ [$_{\text{CP1}}$ … V [$_{\text{CPnon-root}}$ [$_{\text{C°}}$ mbúù/ndà [$_{\text{TP}}$ …] lá]]]]

- As predicted by (16a), sentences with a clause introduced by C.L (*mbù*) can accommodate two questions

(17) [**kùlá** [mù bɛ́ttə́ [**mbù** [**kùlá** [ú ɣùú ↓mb$^{h}$ú] **á** ]]] **á**]
Q 1SG ask C.L Q 2SG have dog Q Q
'Did I ask: Do you have a dog?'

- Complementizer *lá* is homophonous with the copula, and the near-listener demonstrative, which is a common pattern across languages (for the latter case, compare e.g. English *that*)

(18) a. nzì kúʔú **lá** nùúm nùmí
envy taro COP.BE PREP Numi
lit. The envy of taro is on Numi
'Numi wants to eat'
b. mú lèn mbúù á lɛ̀gdə̀ə́ [b$^{h}$úʔŋwànì **lá**] **lá**
1SG know C.HL 3SG forget book DEM C
'I know if he forgot that book'

- *lá*$_{\text{DEM}}$ and *lá*$_{\text{C}}$ behave similarly: CP and DP are delineated by two elements, the initial one can be omitted, the final one (*lá*) must be overt
  - Kouankem (2013) proposes a DP-peripheral position for *lá*$_{\text{DEM}}$, as it is the only element in the DP that does not agree with N

(19) [[y-ə̂n tə̂ntsə̀ ] lá ] [Kouankem, 2013:60]
AGR-D calabash there
'that calabash'

## 3. How to make complementizers clause-final

### *3.1 Linearization of final or multiple complementizers in other languages*

- Taiwanese *kong* must be C°, and TP raises to Spec,CP after Spell-Out for two reasons (Simpson & Wu, 2002):
  - V+V (e.g. think say) was grammaticalized to V+C (e.g. think that), as observed in numerous other languages (e.g. Thai, Ewe, some other varieties of Chinese)
  - Tone sandhi (•) does not apply to final elements, but it applies to *kong* → apply phonological rules when C-TP is spelled-out, only then move TP

(20) a. A•-hui siong• kong• A•-sin m• lai
A-hui think say/C A-sin NEG come
'A-hui thought that A-sin was not coming.'

b. A•-hui siong• A•-sin m• lai kong•
A-hui think A-sin NEG come C
'A-hui thought that A-sin was not coming.'

- Less straightforward when there are multiple C-elements, as e.g. known from complementizer doubling and doubly-filled Cs

(21) a. *Ligurian* (Paoli, 2007:1058)
A Teeja a credda **che** a Maria **ch'** a parta
the Teresa SCL believe.3SG that the Mary that SCL leave.3SG
'Teresa believes that Mary is leaving.'

b. Colloquial Dutch (Barbiers, 2008:15)
Weet jij **of** **dat** Jan komt
know you if that Jan comes
'Do you know whether Jan will come?'

c. Tyrolian (Alber, 2008:142)
I kenn es Haus **des** **wos** du glapsch **des** **wos**
I know the house REL C.REL you think REL C.REL
die Maria gekaaft hot
the Maria bought have
'I know the house, which you think Maria bought.'

- Paoli (2007), Munaro (2016), and others take the complementizers in examples like (20a) as Force° and Fin° in a Split-CP (Rizzi, 1997), the DP moves to TopP or FocP

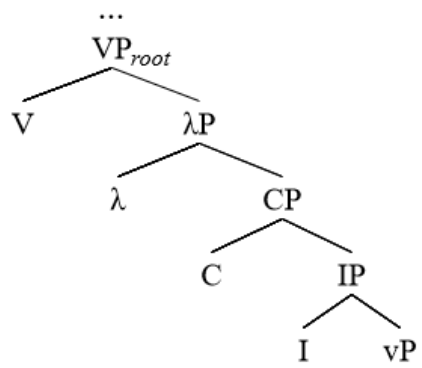
(22) [$_{\text{ForceP}}$ [$_{\text{Force°}}$ che [… [$_{\text{FinP}}$ [$_{\text{Fin°}}$ ch'a …]

- The complementizers in the Dutch example (21b) have different properties, Bayer (2004) analyses them as a disjunctive and a subordinating C

(23) [Weet jij [$_{DisjP}$ of [$_{CP}$ dat [Jan komt]]]

- Franco (2012) argues that there is an abstract head λ with nominal features above C, which can accommodate a second complementizer/relative pronoun
    - nominal elements like demonstratives grammaticalized as clausal linkers, marking clause boundary

(24) *Nominal λP selects subordinate CP (Franco, 2012:586)*




- The Split-CP analysis was also applied to Cantonese (Law, 2002) and Mandarin Chinese (Paul, 2014), which can have multiple sentence-final particles (SFPs)
    - each SFP has distinct properties and is located in a different head
    - both proposals require a differently labelled projection in the CP (SFP2, C(low)) that does not equal TopP/FocP/FinP
    - Paul (2014) additionally locates one of the SFPs in AttitudeP, which dominates ForceP

(25) *Cantonese* (Law, 2002:382)

a. nei heoi zo Baalei zaa3 me1
   you go ASP Paris SFP2 SFP1
   'Did you only go to Paris?'

b. Cantonese Split-CP (Law, 2002:379)
   [Force(SFP1) [TopP [SFP2 [FocP [TopP [TP]]]]]]

(26) *Mandarin Chinese* (Paul, 2014:93)

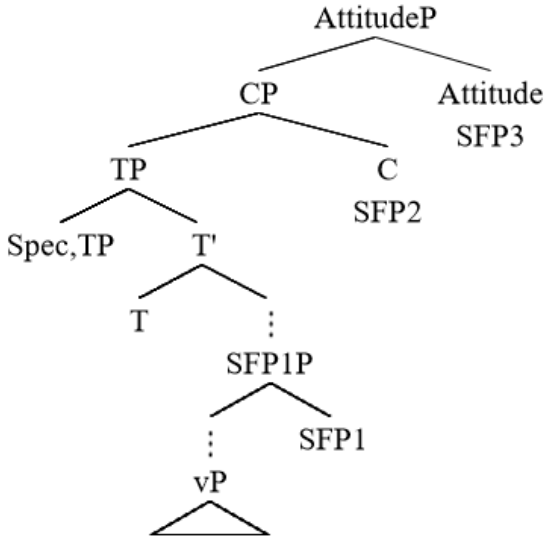
a. Tā dào nǎr qù le ne (*le)
   3SG to where go Clow FORCE (*Clow)
   'So whom have you asked?'

b. kuài zǒu b'ou [=ba + ou] /*ou ba
   fast go PART (fusion) FORCE+ATT /*ATT FORCE
   'Hurry up and go!'

c. Mandarin Chinese Split-CP (Paul, 2014:94)
   Attitude > Force > $C_{low}$ > TP

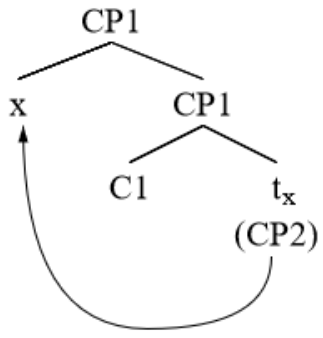
- Erlewine (2017) agrees that one type of Chinese SFPs should occupy Attitude, but takes the lowest one to be the head of the lower phase

(27) Chinese SFP structure according to Erlewine (2017)




- Erlewine (following Hsieh & Sybesma, 2011) derives the SFPs' final position from their status as phase heads as follows:
  - a spelled-out phase remains as an atom in the structure, and according to Max Spell-Out (Hsieh & Sybesma, 2011:69), this includes the phase edge
  - the atom and the head merged next are symmetric, as the inner structure of the spelled-out phase is neither visible nor accessible anymore
  - the atomic SFPP moves to break symmetry (→*Dynamic Antisymmetry*, Moro, 2000)
  - In Hsieh & Sybesma's original analysis, the SFPs are all C°s in different CPs

(28) *Symmetry-Breaking and CP+CP structure* (following Hsieh & Sybesma, 2011:13)




- Hsieh & Sybesma's proposal for motivating movement of the complement does not hold without Max Spell-Out, as C1 and C2 would already be asymmetric (29), and cannot be applied to SFPs that are not phase heads

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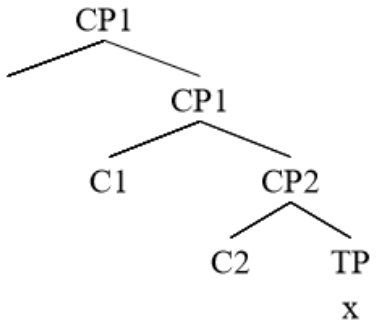
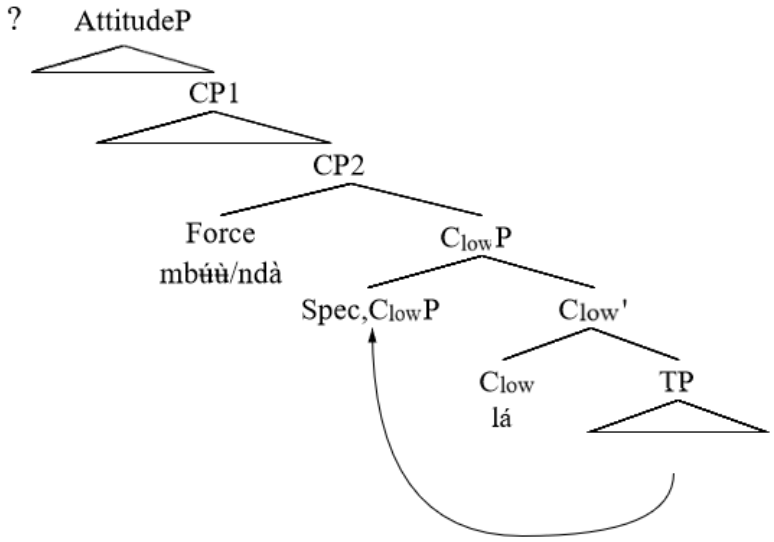



- Alternatives to roll-up movement or symmetry breaking? EPP/Edge feature?

### *3.2 Towards an analysis of Medumba clause-final lá*

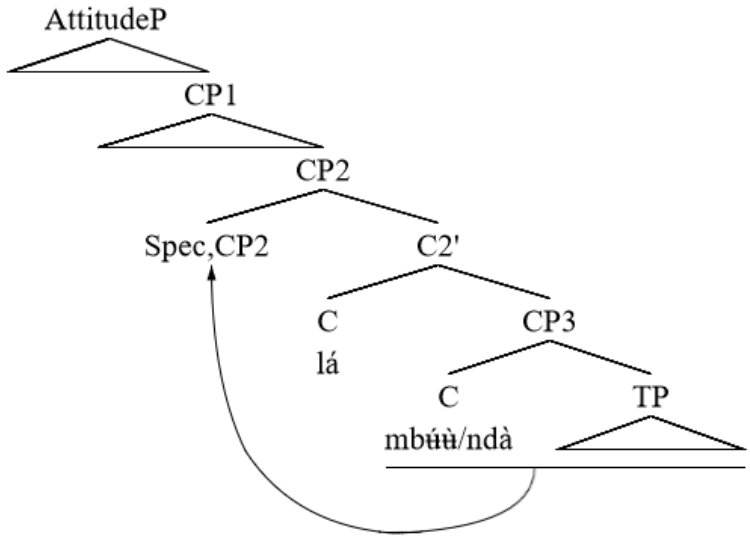
- Can the Split-CP analysis account for the Medumba subordinate clause?
  - (10) and (11) showed that Medumba does not move focused phrases to FocP
  - Material between initial and final C has neither focus nor topic character like e.g. the DP between the doubled complementizers in Italo-Romance
  - Unclear which of the two Cs would correspond to lower projection, but neither seem to be associated with finiteness → extra projection as assumed by Law (2002) or Paul (2014)?
  - Analysis does not explain why *lá* is obligatory while the intial Cs can be omitted

(30)



- CP+CP (roughly in Hsieh & Sybesma's sense) can solve some of these problems
  - *lá* would be treated as the subordinating complementizer, selecting CP headed by *mbúù*/*ndà* → explains why *lá* is obligatory in subordinate clauses

(31)




  - *lá* and *mbù* would be counterparts: both are selected by propositional attitude verb (PAV), and further select either a root or non-root clause

(32) a. [$_{CP1}$ … PAV [$_{mbùP}$ [mbù [$_{CProot}$ …]]]]
b. [$_{CP1}$ … PAV [$_{láP}$ [lá [$_{CPnon\text{-}root}$ [$_{C°}$ mbúù/ndà [$_{TP}$ …]]]]]]

  - but: does not explain why *lá* requires a filled specifier and *mbù* does not,
  - and CP+CP terminology should be refined, as higher CP is probably not a CP (no evidence for covert/elided material between *lá* and CP, and category should not be repeated)
  - instead of labelling the phrase that accommodates *lá* and *mbù* as another CP, it is more likely that they are of a different category, such as conjunctions, similar to the multiple Cs in Dutch (21b), or clausal linkers in Franco's (2012) sense (although *mbù* does not seem to have a nominal origin)

- What about the homophony of *lá*$_{DEM}$ and *lá*$_{C}$?
  - Not uncommon for complementizers to be multifunctional, e.g. Vietnamese *la* can either be copula or subordinating conjunction; takes on the function of the position that it occupies (Duffield, 2013)

(33) Vietnamese (Duffield, 2013:15)

| Tôi | không | thể | nói | **là** | tôi | **là** | người | tốt | hơn | tốt | nhất |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I | NEG | can | say | C | I | COP | person | good | C | good | SUP |

'I can't say that I'm the better person, or the best person.'

- The positions that Medumba *lá*$_{DEM}$ and *lá*$_{C}$ occupy might thus have some abstract property in common, that allows multifunctional/underspecified *lá* to occur in either position

## 4. Final Complementizers and FOFC

- Final complementizers in otherwise head-initial languages such as Medumba or Chinese possibly challenge FOFC
- In order to evaluate how exactly Medumba and Chinese do or do not violate FOFC, a more refined definition is necessary (34):
  - FOFC applies in domains with the same specification of [±V]
  - Head-final orders are derived from Spec-Head-Complement order (Kayne, 1994), if the movement-triggering diacritic ^ (caret) is passed on with [±V]

(34) *The Final-over-Final Condition* (Biberauer, Holmberg & Roberts, 2014:210)
If a head $\alpha_i$ in the extended projection EP of a lexical head L, EP(L), has ^ associated with its [±V]-feature, then so does $\alpha_i$+1, where $\alpha_i$+1 is c-selected by $\alpha_i$ in EP(L).

Why are final Cs dominating a head-initial TP allowed?

- Option 1: the head-final phrase is in a different domain than the head-initial phrase
  - Erlewine (2017) argues that FOFC domains should equal Spell-Out domains: if the spelled-out phase is inaccessible and the inner structure invisible, information about directionality should not be accessible either
    - but: not all SFPs are phase heads, and phase head is part of same extended projection as its complement and should thus inherit [±V] and possibly ^
  - Franco's (2012) abstract head λ has nominal features, other than the CP that it selects
    - essentially creates a separate FOFC domain, as λP should be specified as [-V] and CP is [+V]
    - a new domain should also allow the introduction of the ^
- Option 2: the final element is acategorial and thus not subject to FOFC (cf. Biberauer, Newton & Sheehan 2009; Biberauer, Holmberg & Roberts 2014; Biberauer 2017)
  - Seems to apply to Medumba *lá*: can be used in nominal and verbal domain, so it cannot be specified for either category
    - but: should inherit [+V] and no roll-up movement triggering ^, leaves question how head-final order is derived
  - Paul & Pan (2017) argue against this: Chinese SFPs must have categorial feature to derive their specific distribution

- What about SFPs in Attitude/SA-structure?
  - Is it really an extension of the verbal domain?
  - Elements in it neither seem to have verbal nor nominal properties

## 5. Conclusion

- SFPs can be found in the same kinds of positions across languages: Attitude/SA-Domain, Force°/C°, somewhere below Force°/C° (analysis-dependent)
- Depending on the kind of SFP/doubled element a language has, either a Split-CP analysis (Romance, Chinese) or the 'stacking' approach (Germanic, Medumba) is preferable
    - Is it meaningful how the languages group together here?
- Final complementizers and SFPs across languages seem to have in common that
    - they usually are in a high position, dominating the material that they later follow in linear order
    - this position is often peripheral
        - What does it tell us that it is only the CP- and DP-peripheral element that behaves differently than the rest of the phrase in Medumba?
    - the different kinds of particles have distinct properties, dividing them into different types; only one of them may be subordinating/indicating Force
- not entirely clear if final Cs can trigger movement of their complement or if there is another reason why they end up in final position
    - Why do some head-initial languages allow final Cs and others do not?
    - How can we account for the fact that Medumba *lá* requires a filled specifier, but its 'counterpart' *mbʉ̀* does not?
- Acategorial/Multifunctional elements like Medumba *lá* might not violate FOFC, but this argument does not necessarily hold for all kinds of SFPs (Paul & Pan, 2017)
    - Are final Cs over initial TPs allowed for other reasons than their potentially acategorial nature?

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