

# Polar Question Particles and the Final-Over-Final Constraint

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Hello!

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## Goals

- Particles seemingly violate the Final-Over-Final Constraint (FOFC) (Holmberg 2000, Biberauer et al. 2008) because they are phonologically dependent on the preceding word and are placed at the sentence-final position.
- Right-branching structure has longer juncture between its constituents than left-branching structure.
- This junctural asymmetry prefers sentence-final particles to sentence-initial ones even in VO languages.

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## Roadmap

1. The Final-Over-Final Constraint (FOFC)
2. VO & IP-C as FOFC violation
3. Short/long juncture in left/right-branching structure
4. Asymmetry between initial and final Cs
5. Why is VO..Q allowed? q-movement in PF
6. Consequences of PF-movement analysis

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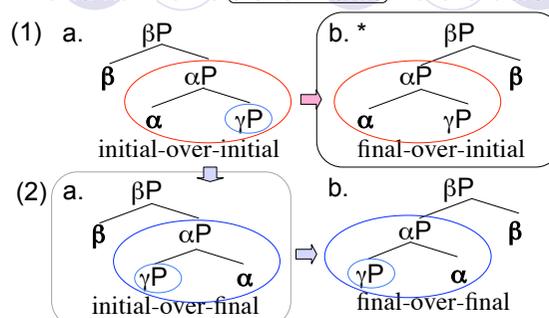
## 1. Final-Over-Final Constraint

### 1.1 Definition

- The Final-Over-Final Constraint (FOFC)  
\* $[_{\beta P} [_{\alpha P} \alpha \gamma P] \beta]$  (Holmberg 2000, Biberauer et al. 2008)
- If  $\alpha$  is a head-initial phrase and  $\beta$  is a phrase immediately dominating  $\alpha$ , then  $\beta$  must be head-initial:  $[_{\beta P} \beta [_{\alpha P} \alpha \gamma P]]$ .
- If  $\alpha$  is a head-final phrase, and  $\beta$  is a phrase immediately dominating  $\alpha$ , then  $\beta$  can be head-initial or head-final:  $[_{\beta P} \beta [_{\alpha P} \gamma P \alpha]]$  or  $[_{\beta P} [_{\alpha P} \gamma P \alpha] \beta]$

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### 1.2 Final-Over-Final Constraint (FOFC) and harmonic/disharmonic word-orders



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## 2. VO & IP-C as FOFC violation

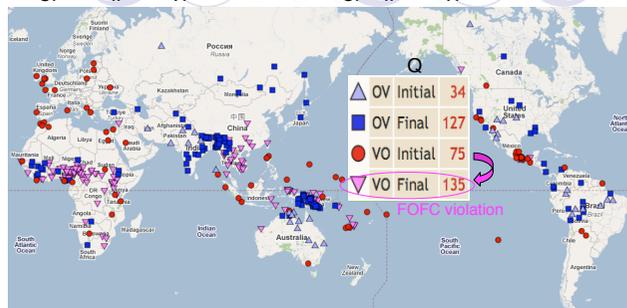
$[_{CP} C [_{IP} .. [_{VP} V O] ..]] \Rightarrow [_{CP} [_{IP} .. [_{VP} V O] ..] C]$   
 $[_{CP} [_{IP} I [_{VP} V O]] C]$  or  $[_{CP} [_{IP} [_{VP} V O] I] C]$

- (1) Polar question particles (Q)
- a. *Je. Ngido a-na-penda kazi?* (Swahili)  
Q Ngido SM-TNS-like work  
'Does Ngido like work?' Q..VO 75 lgs
- b. *nǐ néng xiě Zhōngguó zì ma* (Mandarin)  
you can write Chinese character Q  
'Can you write Chinese character?' VO..Q 135 lgs
- (2) Adverbial subordinators (Sb)
- a. I love Cambridge because it has nice people.  
Sb..VO 279 lgs
- b.#.. I met nice people because ..  
VO..Sb 3 lgs

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### 2.1 VO & IP-Q

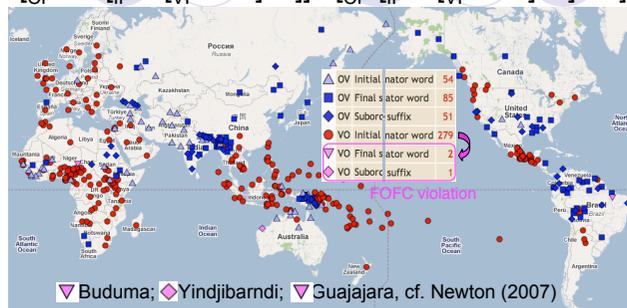
$[_{CP} Q [_{IP} .. [_{VP} V O] ..]] \Rightarrow [_{CP} [_{IP} .. [_{VP} V O] ..] Q]$



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### 2.2 VO & IP-Sb

$[_{CP} Sb [_{IP} .. [_{VP} V O] ..]] \Rightarrow [_{CP} [_{IP} .. [_{VP} V O] ..] Sb]$



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## 3. Short/long juncture in left/right-branching structure

### 3.1 Phonological Change (Tokizaki 2008)

- (1) Japanese Sequential Voicing (*Rendaku*)
- a.  $[[nise \textit{danuki} \textit{jiru}] \textit{jiru}] <- \textit{shiru}$   
mock badger soup 'mock-badger soup'
- b.  $[nise [ \textit{tanuki} \textit{jiru}]] \rightarrow * \textit{danuki}$   
mock badger soup 'mock badger-soup'
- (2) Korean *n*-Insertion
- a.  $[[lon \textit{chən} \textit{nyok}] \textit{nyok}] <- \textit{yok}$   
hot spring bathe 'bathing in a hot spring'
- b.  $[kyəŋ [ \textit{yaŋ} \textit{sik}]] \rightarrow * \textit{nyəŋ}$   
light Western food 'a light Western meal'

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### 3.2 Interfixes in Dutch compounds (Krott et al. 2004)

- (1) a. [*arbeid-s-[vraag stuk]*] (-s- 38; all interfixes 60)  
employment+question-issue
- b. [*hoofd [verkeer-s-weg]*] (-s- 3; all interfixes 11)  
main+traffic-road  
(-s- 38÷3=12.7; all 60÷11=5.5)
- (2) a. [*[grond wet]-s-aartikel*] (-s- 25; all 39)  
ground-law+article, constitution
- b. [*[scheep-s-bouw] maatschappij*] (-s- 13; all 50)  
ship-building+company  
(-s- 25÷13=1.9; all 39÷50=0.8)

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### 3.3 Suffixes and prefixes

- Suffixes tend to be more tightly bound to their root than prefixes (Hyman 2008: 323)  
P R-S, ω R-suffix, ... [[<sub>Rt</sub> ...] Suf] vs. [Pref [<sub>Rt</sub> ...]]
  - .. a suffix bears a close structural relation to the root that it attaches to: ..  
By contrast, the structural relation between a prefix and the root it attaches to is less stable. (Julien 2002:226)
- (1) *mə'á*      *ŋgə wíŋ*      *òmpyə'* (Makaa)  
1s    Rem.Past Prog chase.away dogs  
'I was chasing the dogs away.'

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### 4. Asymmetry between initial and final Cs

#### 4.1 Asymmetry of subordinator word and affix

##### 4.1.1 No subordinating prefix

- (1) a. [<sub>CP</sub> Sb [<sub>IP</sub> ...]] 367    b. [<sub>CP</sub> [<sub>IP</sub> ...] Sb] 90
- (2) a. \* [<sub>CP</sub> Sb-<sub>[IP</sub> ...]] 0    b. [<sub>CP</sub> [<sub>IP</sub> ...]-Sb] 59

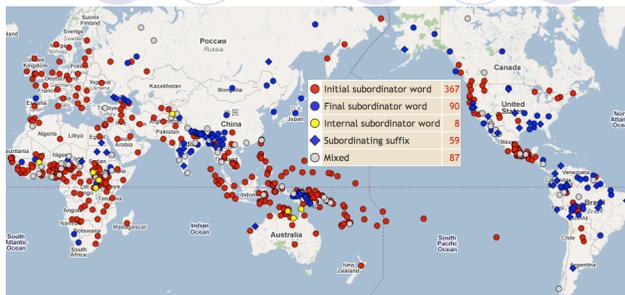
##### 4.1.2 Word in initial C and suffix in final C

- (3) Majang (Surmic)  
*agutucee-ko tolay doko-du ogol-ku*  
because-PST Tolay bring-reason mead-reason  
'because Tolay brought mead'

Cf. 'that' complementizer derived from V 'say'  
Taiwanese *kong*; Bengali *je/bole* (Bayer 1999)

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### Junctural asymmetry and adverbial subordinators



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### 4.2 Asymmetry of polar question particles

#### 4.2.1 Cliticization of sentence-final particles

- (1) *den-ε daaki tolay-ŋ* (Majang)  
see-3SG Daaki Tolay-Q 'Did Daaki see Tolay?'
- (2) *taberu-ka* (Japanese)  
eat-Q 'Do you (want to) eat it?'

#### 4.2.2 Initial heavy Q and final light Q in a language

- (3) Hunde (Bantu)
  - a. *mbéni ámukátsi mu-lómbe*  
Q woman NC-lazy 'Is the woman lazy?'
  - b. *ámukátsi mu-lómbe hé*  
woman NC-lazy Q 'Is the woman lazy?'

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#### 4.2.3 Initial heavy particles and final light particles

- (1) a. *lí tâu à sîi* (!Xoo)  
Q people TNS come 'Did the people come?'
- b. *Est-ce que Pierre est malade?* (French)  
Q Pierre is sick 'Is Pierre sick?'
- (2) a. *nǐ lèi ma* (Mandarin Chinese)  
you tired Q 'Are you tired?'
- b. *a-yai bi-dani mem di-ngat i* (Hatam)  
2SG-get to-me for 1SG-see Q  
'Would you give it to me so that I can see it?'

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### 5. Why is VO..Q allowed?

#### 5.1 PF-Movement of q in \*q-IP

- Question particles are light and clitic-like (q):  
a. \* Wd # q # Wd    b. [<sub>Pwd</sub> Wd-q] or [<sub>Pwd</sub> q-Wd]
- The juncture between C and IP is shorter in left-branching [IP C] than in right-branching [C # IP].
- A particle can cliticize to an adjacent word across short juncture but not across long juncture:  
a. [<sub>IP</sub> .. Wd]-q    b. \* q-#[<sub>IP</sub> Wd ..]
- To save (b), PF-movement of q makes [<sub>IP</sub> .. Wd]-q without violating a syntactic constraint FOFC.  
Cf. Heavy particles can stand alone as a prosodic word at the clause-initial position: [<sub>Pwd</sub> Q # [<sub>IP</sub> Wd ..]]

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#### 5.2 No PF-Movement of sb in \*sb-IP

- Adverbial subordinators are heavy enough to stand alone as a prosodic word:  
a. Wrd # Sb # Wrd    b. [<sub>Pwd</sub> Wrd-sb] or [<sub>Pwd</sub> sb-Wrd]
- The juncture between C and IP is shorter in left-branching [IP C] than in right-branching [C # IP].
- A subordinator can cliticize to an adjacent word across short juncture but not across long juncture:  
a. [<sub>IP</sub> .. Wrd]-sb    b. \* sb-#[<sub>IP</sub> Wrd ..]
- PF-movement of sb does not take place to save (b) because an alternative **Sb** # [<sub>IP</sub> .. Wrd] is available.

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#### 5.3 Typology of adverbial subordinators

- (1) a. Sb [<sub>IP</sub> ..VO..] harmonic 279
  - b. \* sb-<sub>[IP</sub> ..VO..] impossible affix
  - c. \* [<sub>IP</sub> ..VO..] Sb FOFC violation 2
  - d. \* [<sub>IP</sub> ..VO..]-sb FOFC violation 1
  - (2) a. Sb [<sub>IP</sub> ..OV..] disharmonic 54
  - b. \* sb-<sub>[IP</sub> ..OV..] impossible affix
  - c. [<sub>IP</sub> ..OV..] Sb harmonic 85
  - d. [<sub>IP</sub> ..OV..]-sb harmonic 51
- Total # of languages in WALS 336

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## 5.4 Typology of polar question particles

- |                              |                |                  |     |             |
|------------------------------|----------------|------------------|-----|-------------|
| (1) a.                       | Q [IP ..VO..]  | harmonic         | 75  |             |
| b.                           | *q-[IP ..VO..] | impossible affix |     |             |
| c.                           | *[IP ..VO..] Q | FOFC violation   |     | PF-movement |
| d.                           | [IP ..VO..]-q  | PF-movement      | 135 |             |
| (2) a.                       | Q [IP ..OV..]  | disharmonic      | 34  |             |
| b.                           | *q-[IP ..OV..] | impossible affix |     |             |
| c.                           | [IP ..OV..] Q  | harmonic         | 127 | }           |
| d.                           | [IP ..OV..]-q  | harmonic         |     |             |
| Total # of languages in WALS |                |                  | 244 |             |

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## 5.5 Sentence-final question particles in VO languages

- den-e daaki tolay-ŋ* (Majang (Ethiopia))  
see-3SG Daaki Tolay-Q 'Did Daaki see Tolay?'
- ámukátsí mu-lómbé he* (Hunde, cf. *mbéni* ..)  
woman NC-lazy Q 'Is the woman lazy?'
- nǐ lèi ma* (Mandarin Chinese)  
you tired Q 'Are you tired?'
- a-yai bi-dani mem di-ngat i* (Hatam)  
2SG-get to-me for 1SG-see Q  
'Would you give it to me so that I can see it?'

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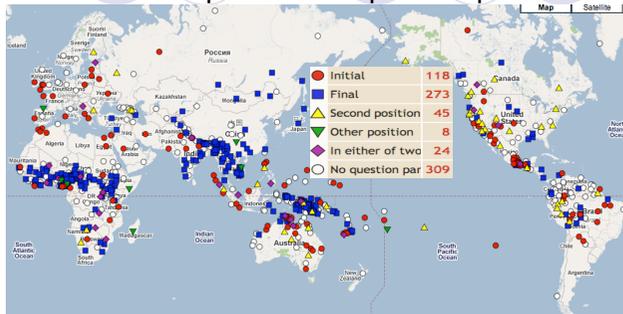
## 5.6 Sentence-initial question particles in VO languages

- mbéni ámu-kátsi mu-lómbé* (Hunde: Bantu)  
Q woman NC-lazy 'Is the woman lazy?'
- lú tǎu à sǎi* (!Xoo)  
Q people TNS come 'Did the people come?'
- Est-ce que Pierre est malade?* (French)  
Q Pierre is sick 'Is Pierre sick?'

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## 6. Consequences of PF-movement analysis

### 6.1 Various positions of question particles



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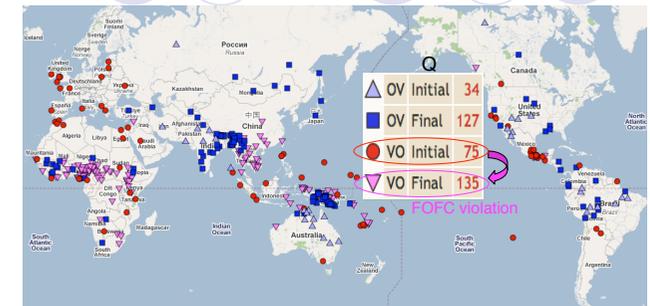
## Landing sites of q moved in PF

- Second position in the sentence (Yurok)  
*kic hes nesk<sup>w</sup>ec-ok<sup>w</sup> ku wɪʔyɪs*  
Pst Q come-3Sg Def girl  
'Has the girl come back yet?'
- Second position clitic (Mono: SOV)  
*Charley = wáʔ mia-pi*  
Charley=Q go-PERF 'Has Charley left?'

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## 6.2 VO..Q and Tone languages

### 6.2.1 Geographical distribution of VO..Q



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## 6.2.2 Geographical distribution of tone languages



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## 6.2.3 VO..Q and tone complexity

	VO	VO-Q	VO-Q/VO%
No tones	89	10	11.2
Simple tone system	46	17	37.0
Complex tone system	40	18	45.0
Total	175	45	25.7

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## 6.2.4 Dependency hierarchy of polar question particles

- In tone languages, particles are likely to have a light tone, which must be adjacent to another tone.
- Sentence-initial light tones are impossible because of long juncture: \*q-#IP -> IP-q
- Sentence-initial unstressed particles can be more independent from adjacent syllables: ?Q # IP
- q (light tone) < Q (unstressed) < Q (tone/stressed)  
\*q-# IP      ?Q # IP      Q # IP  
IP-q      IP-Q
- 17+18 lgs      10 lgs [135 lgs]      75 lgs
- \*sb (light tone) < ?Sb (unstressed) < Sb (tone/stress)

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## Conclusion

- Polar question particles phonologically depend on an adjacent word, which is impossible in sentence-initial position because of long juncture in right-branching structure.
- As a last resort, polar question particles may move to sentence-final position in PF in VO languages.
- Sentence-final question particles in VO languages are not real counterexamples to a syntactic constraint FOFC, which does not apply to PF-movement of question particles.

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## Appendix: Taiwanese complementizer *kong*

- (1) A ·-hui siong · **kong** · A ·-sin m · lai  
A-hui think Kong A-sin Neg come  
'A-hui thought that A-sin was not coming.'
- (2) A ·-hui siong · A ·-sin m · lai **kong** · (IP)  
A-hui think A-sin Neg come Kong  
'A-hui thought that A-sin was not coming. (I'm telling you!)'
- (3) A ·-hui liau ·chun · **kong** · A ·sin si · tai ·pak · lang **kong** · (IP)  
A-hui thought Kong A-sin is Taipei person Kong  
'A-hui thought that A-sin is from Taipei. (I'm telling you!)'
- (4) A ·sin m · lai **kong** · (IP)  
A-sin Neg come Kong  
'A-sin's not coming. (I'm telling you!)'

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