

The locus of Mandarin sentence-final particles and the Final-over-Final Constraint

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Today

Previous work on Mandarin Chinese sentence-final particles (SFPs) have proposed or assume that SFPs are uniformly in the high clause periphery, such as in (a split) CP (see e.g. Lee, 1986; Tang, 1988; Cheng, 1991; Paul, 2014, 2015).

☞ I show that a subset of Mandarin SFPs are in a dedicated, clause-medial position **between TP and vP**, rather than in the CP periphery (cf Tang, 1998).

I identify this as the head of the lower phase of the clause (traditionally vP; Chomsky 2000 a.o.).

Specifically, I investigate **sentence-final *le* and ‘only’ *éryǐ***. Because word order alone does not teach us about the structural height of SFPs, **my evidence comes from semantic scope**.

- SFPs have been well-discussed as a **challenge to the Final-over-Final Constraint (FOFC)**; Holmberg 2000; Biberauer, Holmberg, and Roberts 2008, 2014; Biberauer, Newton, and Sheehan 2009; a.o.). The presence of SFPs in a clause-medial position, as well as the clause periphery, **sharpens the challenge to FOFC**.

☞ I propose that the distribution of Mandarin SFPs is best explained by embracing FOFC but refining it so **FOFC does not apply across Spell Out domains** (in analytic languages such as Mandarin).

Roadmap

- §1 Proposal
- §2 Evidence
- §3 SFPs and FOFC

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1 Proposal

1.1 Background

Mandarin SFPs come in three classes (Chao, 1968; Hu, 1981; Zhu, 1982, a.o.). They are strictly ordered (SFP₁ < SFP₂ < SFP₃) and SFP in each class are in complementary distribution.

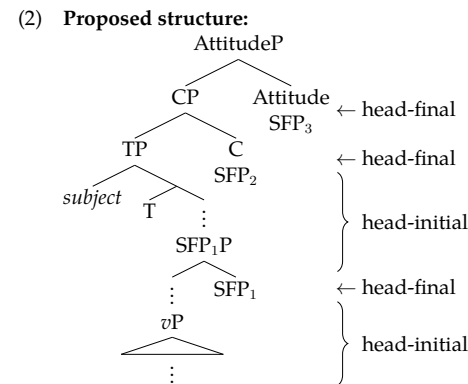
- (1) **Three classes of Mandarin Chinese SFPs:** (based on Paul 2014, 2015)
 - a. **SFP₁: low SFP**
sentence-final *le*, recent past *láizhe*, durative *ne*, ‘only’ *éryǐ*
 - b. **SFP₂: clause-type**
polar question *ma*, imperative *ba*
 - c. **SFP₃: speaker / addressee attitude**
impatient *ou*, softening *a*, gentle reminding *ei*

I follow the common view that **all SFPs are head-final heads** in the clausal spine (Lee 1986; Tang 1988; Cheng 1991; Tang 1998; Paul 2014, 2015 and references there), but return to this assumption at the end.

Tang (1998) and Paul (2014, 2015) motivate a **first-order split** between the low SFP (SFP₁), which can be embedded, and high SFP (SFP₂ and SFP₃). Paul (2014, 2015) proposes that SFPs realize a three-layer split CP, following Rizzi (1997) a.o.

1.2 Proposal

- ☞ The low SFPs (SFP₁) are **clause-medial, between vP and TP**.
SFP₁ is the head of the lower phase of the clause.



I abstract away here from how these projections become head-final. (See Appendix.)

2 Evidence for clause-medial SFPs

Because of their sentence-final position, the linear position of SFPs does not clearly reflect their structural position. I study the **semantic scope** of two low SFPs, *le* and ‘only’ *éryǐ*.

- (3) **If low SFPs are in CP, we predict scope over all TP-internal operators:**
 $[_{CP} [_{TP} \dots Op \dots] SFP_1] \Rightarrow \checkmark SFP_1 > Op, *Op > SFP_1$
- (4) **If low SFPs are clause-medial, we predict scope over some operators and under others:**
- a. “... Op ... SFP₁” with a lower operator (Op):
 $[_{CP} \dots [_{SFP1P} [\dots Op \dots] SFP_1]] \Rightarrow \checkmark SFP_1 > Op, *Op > SFP_1$
- b. “... Op ... SFP₁” with a higher operator (Op):
 $[_{CP} \dots Op \dots [_{SFP1P} \dots SFP_1]] \Rightarrow *SFP_1 > Op, \checkmark Op > SFP_1$

2.1 Sentence-final *le*

Background

The function of sentence-final *le* is often described as expressing a change of state or that the assertion is somehow unexpected (Li and Thompson, 1981, a.o.):²

- (5) **The semantic contribution of sentence-final *le* (ex Soh, 2009, p. 625):**

Tāmen dàodá-le shān-dǐng le.
 they reach-PERF mountain-top LE

‘They reached the top of the mountain, {which they hadn’t done before, contrary to what one may expect}.’

Here I follow the proposal of Soh and Gao (2006); Soh (2009):

- (6) **Semantics for sentence-final *le* (Soh and Gao, 2006; Soh, 2009):**
 Given a proposition *p*:
Asserts: *p* is true; and
Presupposes: there is “an immediate past event or state” where *p* is false.
- (7) **Example from Soh and Gao (2006):**

Wǒ xǐhuan mùguā le.
 I like papaya LE

Asserts: ‘I (now) like papaya.’
Presupposes: ‘I did not like papaya in the immediate past.’

²The usual caveats regarding sentence-final *le* vs the verbal suffix *le* apply. Critical examples here will therefore always test *le* following a postverbal constituent.

Negation

Consider two sentential negations, *búshì* and *bù*. *Búshì* is higher than *bù* (Huang, 1988; Yeh, 1992; Hsieh, 1996).

- (8) ***búshì* can precede *hái* ‘still’ but *bù* cannot:**
- a. Tā {***bu hái**, ‘**hái bù**} xǐhuān Zhōngguó cài.
 s/he NEG still still NEG like China dish
 ‘S/he still does not like Chinese dishes.’ (Li and Thompson, 1981, p. 345)
- b. Tā **búshì hái** zài hǎi-biān, tā shì hái zài xuéxiào.
 s/he NEG still at sea-side s/he SHI still at school
 ‘S/he isn’t still at the beach, she’s still at school.’ (Ibid p. 348)

- (9) **SFP *le* scopes above *bù* but below *búshì* (Soh and Gao, 2006):**

a. *bù...le*: ✓LE > NEG, *NEG > LE
 Wǒ **bù** xiǎng jiā le.
 I NEG miss home LE

Asserts: ‘I do not miss home now.’
Presupposes: ‘I did miss home before.’

b. *búshì...le*: *LE > NEG, ✓NEG > LE
 Wǒ **búshì** xiǎng jiā le.
 I NEG miss home LE

Asserts: ‘I do not miss home now.’
Presupposes: ‘I did not miss home before.’

- (10) **Semantic interpretations of (9), based on (6):**

- a. $\llbracket (9a) \rrbracket = LE(p)$, where $p = NEG(\text{‘I miss home’})$
Asserts: p is true now \iff I do not miss home now
Presupposes: in the immediate past, p was false \iff
 I *did* miss home immediately before
- b. $\llbracket (9b) \rrbracket = NEG(LE(p))$, where $p = \text{‘I miss home’}$
Asserts: $NEG(p)$ is true now \iff I do not miss home now
Presupposes: in the immediate past, p was false \iff
 I *did not* miss home immediately before

☞ SFP *le* is below *búshì* but above *bu*.

Modals

Epistemic modals are structurally higher than deontic and circumstantial modals (Cinque, 1999; Hacquard, 2010, a.o.).

(11) *Le* scopes above *néng* but below epistemic *kěnéng* (Lin, 2011):³

- a. ABLE *néng*...*le*: ✓LE > ABLE, *ABLE > LE
 Zhāngsān **néng** qù Táiběi **le**.
 Zhangsan ABLE go Taipei LE
 ✓ 'It has become the case that Zhangsan is able to go to Taipei.'
 Asserts: 'Zhangsan is able to go to Taipei.'
 Presupposes: 'Zhangsan was not able to go to Taipei in the immediate past.'
 * 'Zhangsan is able to have gone to Taipei.'
- b. MAY *kěnéng*...*le*: *LE > MAY, ✓MAY > LE
 Zhāngsān **kěnéng** qù Táiběi **le**.
 Zhangsan MAY go Taipei LE
 * 'It has become possible that Zhangsan goes to Taipei.'
 ✓ 'Zhangsan may have gone to Taipei.'
 Asserts: 'Zhangsan may have gone to Taipei.'
 Presupposes: 'Zhangsan had not gone to Taipei in the immediate past.'

Grano (2012, section 5.4.4) argues that both (11a) and (11b) are monoclausal and that this contrast is best explained by these modals occupying different positions in the clause, with *le* in a structural position above *néng* and below *kěnéng*.⁴

(12) *Le* scopes above deontic *xūyào* but below epistemic *yào* (Santana-LaBarge, 2016, p. 413):

- a. Deontic MUST *xūyào*...*le*: ✓LE > MUST, *MUST > LE
 Wǒ míngtiān **xūyào** qù Chéngdū **le**.
 I tomorrow MUST go Chengdu LE
 ✓ 'It's now the case [change of state] that tomorrow, I must go to Chengdu.'
 Example context: An employee comes home to tell her husband that her boss is unexpectedly sending her on assignment to Chengdu the next day.
 * 'It will be the case that tomorrow, I must go to Chengdu.'
 Example context: An employee predicts that her employer will send her to Chengdu, even though she is currently not assigned to go.
- b. WILL *yào*...*le*: *LE > WILL, ✓WILL > LE
 Wǒ míngtiān **yào** qù Chéngdū **le**.
 I tomorrow WILL go Chengdu LE
 * 'It's now the case [change of state] that tomorrow, I will go to Chengdu.'
 ✓ 'Tomorrow, I will be going to Chengdu [as a new state].'

☞ Epistemic modals scope over *le*, but *le* scopes over deontic and circumstantial modals.

³Translations here are from Lin (2011). The phrasing 'It has become the case that' in the faithful English translation for (11a) reflects *le* taking scope over the modal.

⁴See also Tsai (2015); Pan and Paul (2014) for additional arguments against a biclausal approach to *kěnéng*.

Subjects

Mandarin simplex *wh*-words can function as indefinites in the scope of certain operators, such as negation (Huang, 1982; Li, 1992; Cheng, 1994; Lin, 1998).

(13) Interrogative and indefinite *wh*:

- | | |
|---|---|
| a. Tā xiǎng chī <i>shénme</i>
s/he want eat what | b. Tā bù xiǎng chī <i>shénme</i>
s/he NEG want eat what |
| i. 'What did s/he want to eat?' | i. 'What didn't s/he want to eat?' |
| ii. * 'S/he wanted to eat something/anything.' | ii. 'S/he didn't want to eat anything.' |

(14) *Wh*-word outside of the scope of negation:⁵

Shéi bù xiǎng chī fàn
who not want eat rice

- | |
|--|
| a. 'Who doesn't want to eat?' |
| b. * 'Anyone/someone doesn't want to eat.' |

(15) *Wh*-indefinite licensed by sentence-final *le* (Li, 1992, p. 133):

- | | |
|---|---|
| a. Tā kàndào <i>shénme</i>
s/he see what | b. Tā kàndào <i>shénme le</i>
s/he see what LE |
| i. 'What did s/he see?' | 'S/he saw something.' ⁶ |
| ii. * 'S/he saw something.' | |

(16) *le* licenses *wh*-indefinites as object but not subject:

- | | |
|---|--|
| a. Tā shuō <i>shénme le</i>
s/he say what LE | b. { <i>Shéi, shénme ren</i> } shuō huà le
who what person say speech LE |
| i. 'What did s/he say?' | i. 'Who spoke?' |
| ii. 'S/he said something.' | ii. * 'Someone spoke.' |

☞ Subjects are outside of the scope of *le*.

Alternative question disjunction

(17) Examples of *háishi* alternative questions from Erlewine (2014a):

- a. Object DP disjunction:
 Nǐ (shì) xiǎng hē [[_{DP} kāfēi] **háishi** [_{DP} hóngchá]] (ne)?
 you SHI want drink coffee HAISHI tea NE
 'Do you want to drink coffee or tea?'

⁶The translation in (15b) from Li (1992) does not reflect the semantic contribution of sentence-final *le*, but the prose in Li (1992, p. 133) describes an appropriate situation for (15b) which supports a change of state or contrary to expectation reading, making the use of *le* felicitous. The semantic contribution of sentence-final *le* will similarly not be translated in (16) below.

b. vP disjunction:

Nǐ (shì) [[_{CP} xiǎng hē kāfēi] **háishi** [_{vP} xiǎng hē hóngchá]] (ne)?
 you SHI want drink coffee HAISHI want drink tea NE

'Do you want to drink coffee or want to drink tea?' (=a)

c. TP disjunction:

(Shì) [[_{TP} nǐ nòng-cuò-le] **háishi** [_{TP} diànnǎo zìjǐ dāngjī-le]] (ne)?
 SHI you make-wrong-PERF HAISHI computer self crash-PERF NE

'Did you make a mistake or did the computer crash by itself?'

Two features to note:

- Different size constituents can be disjoined by *háishi*.⁷
- The focus marker *shì* optionally precedes the left edge of the disjunction.

(18) **Sub-TP disjunction can include sentence-final *le*:**

Context: The addressee is crying.

Nǐ (shì) [[xiǎng jiā **le**] **háishi** [gēn nán péngyǒu fēnshǒu-le] (ne)?
 you SHI miss home LE HAISHI with boyfriend break.up-PERF NE

'Did you start to miss home or break up with your boyfriend?'

We might imagine if this is a CP or TP disjunction with a pro-dropped subject in the second disjunct:

(19) **Hypothetical CP disjunction derivation for (18):**

[[_{CP} Nǐ xiǎng jiā **le**] **háishi** [_{CP} *pro*_i gēn nán péngyǒu fēnshǒu-le] (ne)?
 you miss home LE HAISHI with boyfriend break.up-PERF NE

But this analysis would predict an incorrect placement of *shì*:

(20) **Incorrect placement of *shì* predicted by (19):**

* Shì [[_{CP} nǐ xiǎng jiā **le**] **háishi** [_{CP} *pro*_i gēn nán péngyǒu fēnshǒu-le] (ne)?
 SHI you miss home LE HAISHI with boyfriend break.up-PERF NE

Intended: 'Did you start to miss home or break up with your boyfriend?' (=18)

☞ SFP *le* can be included in the disjunction of sub-TP constituents.

Sentence-final *le* is in a fixed, clause-medial position

- Between higher and lower negation
- Below epistemic modals but above deontic and circumstantial modals
- Below the subject

⁷See Erlewine (2014a) for arguments that these disjunctions are What You See Is What You Get: for example, it is not always disjoining larger, clause-size constituents and then deleting redundant material through some Conjunction Reduction process.

2.2 Sentence-final *éryǐ*

Background

Mandarin has (at least) two 'only' words introducing exhaustivity:

(21) **Two 'only's in Mandarin:**

Context: "What does he do on Saturdays?"

a. Tā **zhǐ** [kàn diànshì]_F.
 He ONLY watch TV

He ONLY watch TV

'He only watches TV.' ⇒ He doesn't do anything else.

b. Tā [kàn diànshì]_F **éryǐ**.
 He watch TV ONLY

He watch TV ONLY

'He only watches TV.' ⇒ He doesn't do anything else.

'Only' associates with focus, presupposing the truth of the prejacent (stated value) and asserting the negation of other focus alternatives.⁸ See Tsai (2004) on *zhǐ* and Erlewine (2010) on *éryǐ*.

(22) **The focus-sensitivity of sentence-final 'only' *éryǐ*:**

a. Wǒ huì [nián]_F Yīngwén **éryǐ**.
 I can read English ONLY

I can read English ONLY

'I can only [read]_F English.' ⇒ I cannot speak it, write it, etc.

b. Wǒ huì niàn [Yīngwén]_F **éryǐ**.
 I can read English ONLY

I can read English ONLY

'I can only read [English]_F.' ⇒ I cannot read other languages.

Here I concentrate on this focus-sensitive exhaustive 'only' *éryǐ* as in (22). There is also a use of *éryǐ* which seems to associate with the entire utterance and mean "It's just that..." or "It's just because..." I will not consider this utterance-level *éryǐ* here.

Negation

(23) **The scope of negation and *only* in English:**

a. ONLY > NEG:

I **only don't** drink [tea]_F. ⇒ I drink everything else.

b. NEG > ONLY:

I **don't only** drink [tea]_F ⇒ I also drink other things (not necessarily everything else).

We again consider the higher *búshì* and lower *bù* negations:

(24) **SFP *éryǐ* 'only' scopes above *bù* but below *búshì* (Erlewine, 2010, p. 23):**

a. *bù...éryǐ*:

^{ONLY > NEG, *NEG > ONLY}

Wǒ **bù** hē [chǎ]_F **éryǐ**.
 I NEG drink tea ONLY

I NEG drink tea ONLY

'I only don't drink [tea]_F.' ⇒ I drink everything else.

* 'I don't only drink [tea]_F.' ⇒ I also drink other things.

⁸See Horn (1969); Rooth (1985) for the semantics of *only* and focus-sensitivity more generally.

b. *búshì...éryǐ*: *ONLY > NEG, √NEG > ONLY

Wǒ **búshì** hē [chǎ]_F éryǐ.
I NEG drink tea ONLY

* 'I only don't drink [tea]_F. ⇒ I drink everything else.
√ 'I don't only drink [tea]_F. ⇒ I also drink other things.

☞ *Éryǐ* is below *búshì* but above *bu*.

Modals

(25) **SFP *éryǐ* takes scope above *néng* but below *kěnéng*:**

a. *ABLE néng...éryǐ*: √ONLY > ABLE, *ABLE > ONLY

Zhāngsān **néng** shuō [Fǎwén]_F éryǐ.
Zhangsan ABLE speak French ONLY

√ 'Zhangsan is only able to speak [French]_F.
⇒ He cannot speak other languages.

* 'Zhangsan is able to only speak [French]_F.

(Possible continuation: ...but he could also speak other languages if he wanted to.)

b. *MAY kěnéng...éryǐ*: *ONLY > MAY, √MAY > ONLY

Zhāngsān **kěnéng** shuō [Fǎwén]_F éryǐ.
Zhangsan MAY speak French ONLY

* 'It's only possible that Zhangsan speaks [French]_F.
⇒ it's not possible that Zhangsan speaks other languages.

√ 'It's possible that Zhangsan only speaks [French]_F.

(Possible continuation: ...but it's also possible that he speaks other languages.)

☞ *Éryǐ* takes scope below epistemic modals but above circumstantial modals.

Subjects

The semantics of 'only' requires a focused constituent in the scope of 'only' (Jackendoff, 1972; Rooth, 1985; Tancredi, 1990; Aoun and Li, 1993; a.o.).

(26) **Only must associate with a focused constituent in its scope:**

- I can only [read]_F English.
- I can only read [English]_F.
- * [I]_F can only read English.
Intended: 'Only [I]_F can read English.'

(27) **Sentence-final *éryǐ* is unable to associate with the subject (cf 22):**

* [Wǒ (yī ge rén)]_F huì niàn Yīngwén éryǐ.
I one CL person can read English ONLY

Intended: 'Only [I (one person)]_F can read English.' ⇒ No one else can.

Tang (1998, p. 45–47) shows the same with Cantonese sentence-final *zaa*: "The subject and any adverbs preceding the subject are always excluded from focalization of *zaa*."

If a subject stays in a postverbal position, as is possible with indefinite subjects of unaccusatives (Travis, 1984), it can be the focus associate of *éryǐ*:

(28) **Sentence-final *éryǐ* can associate with a postverbal subject:**

Lái-le [(wǒ) yī ge rén]_F éryǐ.
come-PERF I one CL person ONLY

'Only [(I) one person]_F came.'

Subject quantifiers also take scope over *éryǐ*:

(29) **Distributive subject with *dōu* takes scope over *éryǐ*:**

Wǒmen **dōu** hē [hēi]_F kāfēi éryǐ.
we DOU drink black coffee ONLY

√ 'Each of us only drinks [black]_F coffee.'

* 'Only [black]_F coffee is such that we all drink it.'

√subject DOU > ONLY

*ONLY > subject DOU

☞ Preverbal subjects are outside of the scope of *éryǐ*.

Alternative question disjunction

(30) ***Háishì* disjunctions of different sizes:**

a. **Disjunction of extended VP:**

Nǐ (shì) [[_{DP} yào yī wǎn fàn] **háishì** [_{DP} yào liǎng wǎn fàn]] (ne)?
you SHI want one CL rice HAISHI want two CL rice NE

'Do you want one bowl of rice or two bowls of rice?'

b. **DP disjunction:**

Nǐ (shì) yào [[_{DP} yī wǎn fàn] **háishì** [_{DP} liǎng wǎn fàn]] (ne)?
you SHI want one CL rice HAISHI two CL rice NE

'Do you want one bowl of rice or two bowls of rice?' (=a)

(31) **Disjunction of extended VP can include sentence-final *éryǐ*; DP disjunction cannot:**

a. **Disjunction of extended projections of VP:**

Nǐ (shì) [[yào [yī]_F wǎn fàn] **éryǐ** **háishì** [yào liǎng wǎn fàn]] (ne)?
you SHI want one CL rice ONLY HAISHI want two CL rice NE

'Do you want only [one]_F bowl of rice or two bowls of rice?'⁹

b. **Disjunctions of DPs:**

* Nǐ (shì) yào [[_{DP} [yī]_F wǎn fàn] **éryǐ** **háishì** [_{DP} liǎng wǎn fàn]] (ne)?
you SHI want one CL rice ONLY HAISHI two CL rice NE

Intended: 'Do you want only [one]_F bowl of rice or two bowls of rice?' (=a)

☞ *Éryǐ* can be included in the disjunction of sub-TP extended VPs.

⁹For the English translation here, I use a DP-adjoining constituent-marking *only*, which Mandarin Chinese does not have (Erlewine, in progress), allowing it to be in an apparent local DP disjunction in the alternative question.

Sentence-final *éryi* is in a fixed, clause-medial position

- Between higher and lower negation
- Below epistemic modals but above circumstantial modals
- Below the preverbal subject

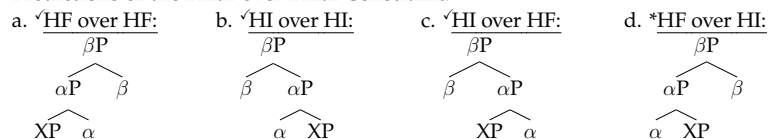
3 SFPs and the Final-over-Final Constraint

Chinese SFPs have been important in the discussion of the *Final-over-Final Constraint* (FOFC; Holmberg 2000; Biberauer, Holmberg, and Roberts 2008, 2014; Biberauer, Newton, and Sheehan 2009; a.o.), a proposed universal on structure-building and linearization.

(32) The Final-over-Final Constraint (FOFC) (Holmberg, 2000, p. 124):

If a phrase α is head-initial, then the phrase β immediately dominating α is head-initial. If α is head-final, β can be head-final or head-initial.

(33) Predictions of the Final-over-Final Constraint:



(34) Word orders in Finnish *wh*-questions (Holmberg, 2000, p. 128):

- a. Aux-V-O:
 \checkmark Milloin Jussi olisi kirjoittanut romaanin?
 when Jussi would.have written a novel
 'When would Jussi have written a novel?'
- b. Aux-O-V:
 \checkmark Milloin Jussi olisi romaanin kirjoittanut?
 when Jussi would.have a novel written
- c. O-V-Aux:
 \checkmark Milloin Jussi romaanin kirjoittanut olisi?
 when Jussi a novel written would.have
- d. V-O-Aux:
 *Milloin Jussi kirjoittanut romaanin olisi?
 when Jussi written a novel would.have

Suppose the auxiliary occupies a head immediately selecting the verb phrase, e.g. $\alpha = V$, $\beta = v$ (Aux). The ungrammatical option in (34d) is exactly the gap expected by and motivating FOFC (33d). This same gap is observed across the possible orders of verb, object, and auxiliary across modern and historical Germanic languages Biberauer, Holmberg, and Roberts (2008, 2014), and at many other levels of syntactic structure.

At the same time, we know FOFC does not hold over entire utterances:

(35) A potential exception to FOFC, in German (Biberauer, Holmberg, and Roberts, 2008):

Johann hat [VP [DP den Mann] gesehen].
 John has the man seen
 'John has seen the man.'

A common intuition for accounting for such data is that *FOFC holds only over certain domains*. I call these **FOFC domains**.¹⁰

☞ Given the otherwise head-initial Mandarin Chinese clausal spine, **SFPs potentially counterexemplify FOFC** (Biberauer, Holmberg, and Roberts, 2008, 2014; Biberauer, Newton, and Sheehan, 2009; Bailey, 2010; Paul, 2009, 2014, 2015; Chan, 2013).

(36) Possible reactions to an apparent exception to FOFC:

Given a FOFC-violating structure [β P [α P α XP] β], one could conclude:

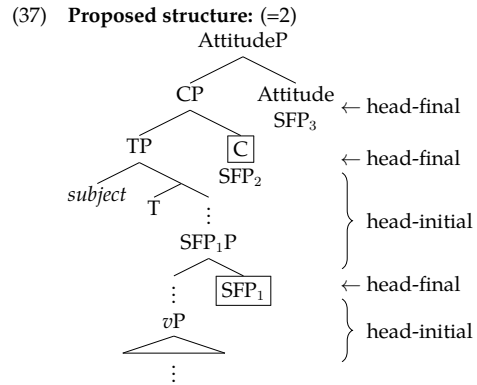
- FOFC is not a real constraint on grammar (or not active in my language);
- The head β is not subject to FOFC evaluation; or
- The heads β and α are in different FOFC domains and therefore FOFC does not apply over them (but FOFC is observed upwards for β and downwards for α).

- Waltraud Paul notably takes the first approach (36a).¹¹
- Most previous work on Chinese SFPs and FOFC have taken the second approach, by somehow exempting SFPs (36b).¹²
- ☞ I advocate for the third approach (36c): **SFPs occur at the edges of FOFC domains, which coincide with phase edges.**

¹⁰For example, Biberauer, Newton, and Sheehan (2009); Biberauer and Sheehan (2012); Biberauer, Holmberg, and Roberts (2014) propose that FOFC should hold only between heads of the same extended projection (Grimshaw, 2000, a.o.).

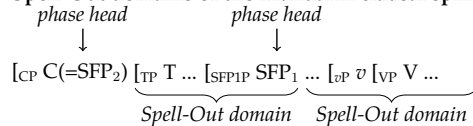
¹¹Following some discussion of Mandarin SFPs, she concludes: "FOFC is thus not a principle of UG, but a statistical generalization" (Paul, 2009, p. 16).

¹²For example, Biberauer, Newton, and Sheehan (2009) and Biberauer, Holmberg, and Roberts (2014) double down on the description of SFPs as "particles" which are somehow "acategorical."



Let C (SFP₂) and SFP₁ be phase heads; the latter heading the lower phase of the clause, traditionally called *vP*. I take complements of phase heads to be Spell-Out domains (Chomsky, 2000, 2001).

(38) **Spell-Out domains of the Mandarin clausal spine (hierarchical):**



The mechanism of cyclic Spell-Out naturally motivates these positions as break points for FOFC: Spell-Out makes subtrees opaque for introspection from above (Uriagereka, 1999; Chomsky, 2000, 2001).

(39) **Spell-Out leads to a natural break in FOFC enforcement:**

a. Merge αP with phase head β : → b. αP undergoes Spell-Out:



(40) **FOFC domains = Spell-Out domains:** (also independently in Richards 2016)
FOFC holds only within individual Spell-Out domains.

This approach gives a principled explanation for why SFPs appear in **these two positions** of the clause: the clause periphery (higher phase edge) and a fixed clause-medial position (lower phase edge).

- An alternative is, for example, that SFPs are adjuncts. The very restricted distribution of SFPs is then difficult to explain.

A potential problem: *V-O-Aux again

Much of the initial motivation for FOFC was word order gaps between main verb, object, and auxiliary. This is most likely a FOFC-effect *across* the higher and lower phases of the clause.

Idea: This reflects morphological differences of the heads involved.

If the lower phase's phase head head-moves or morphologically merges with higher material, this shifts or suspends the Spell-Out boundary (see e.g. Den Dikken, 2007; Gallego, 2007, 2010).¹³

Prediction: (Apparent) FOFC violations might be more likely in isolating/analytic languages and less likely in agglutinating/synthetic languages.

- Philip (2013, p. 206) cites Matthew Dryer (p.c.) in stating that "for many of the VO languages exhibiting final uninflected tense or aspect particles, there is simply no verbal inflection in the language at all."
- The FOFC-violating V-O-Aux order is attested by an ability modal in Middle Chinese and in a number of Southeast Asian languages (Simpson, 2001), with are indeed very analytic.

This explains the observation that "FOFC violations may cluster" (Biberauer et al., 2008, p. 100) in certain language families or in certain parts of the clause.

4 Conclusion

- The low SFPs *le* and *éryǐ* are in a **dedicated clause-medial position**, between higher and lower negations, epistemic and deontic modals, preverbal subjects and the VP.
- ☞ **Low SFPs realize the lower phase head.**
- The limited distribution of SFPs in Mandarin is best explained by **embracing FOFC**, with **SFPs being head-final heads** in the clausal spine.
- ☞ **Spell-Out domains are FOFC domains.** Extended stretches of FOFC enforcement (e.g. in languages with richer verbal inflection) reflect shifts in Spell-Out boundaries.

¹³An alternative approach which does not rely on the notion of phase expansion/sliding is to adopt the explanations for FOFC in Trinh (2011, chapter 4) and Richards (2016). Trinh (2011) and Richards (2016) independently offer derivations of FOFC effects which explicitly rule out FOFC-violating configurations between projections which are related by head movement.

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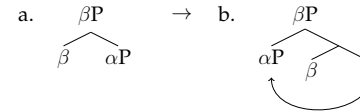
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Appendix: Deriving head-finality

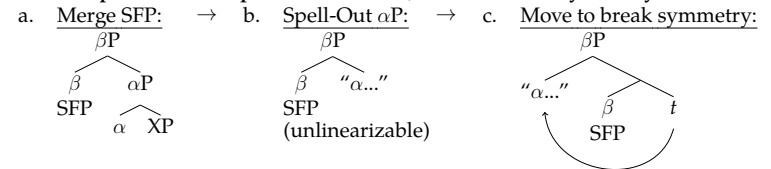
Two basic approaches: base-generated head-final heads or comp-to-spec movement

(41) Deriving head-finality through movement:



☞ Hsieh and Sybesma (2011) propose that this comp-to-spec movement occurs after Spell-Out of complements, for symmetry-breaking (cf Moro, 2000), predicting head-finality precisely at phase edges.

(42) SFP complements are Spell-Out domains, move to break symmetry:



Hsieh and Sybesma (2011) only discuss high SFPs, which are at the CP edge.

“A question reviewers have raised has to do with *vP*, also a phase. On the basis of our treatment of CP, we expect that with *vP*, we will also run into symmetry problems, as soon as a higher functional head (e.g., Asp, T) is merged after it has been spelled out, with subsequent movement to the spec of this head. The reviewers raising this important point imply that this never happens.” Hsieh and Sybesma (2011, p. 79)

The presence of low SFPs at the lower phase edge is in fact exactly what would be predicted under this account.