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

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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 *v*P**, rather than in the CP periphery (cf Tang, 1998).

I identify this as the head of the lower phase of the clause (traditionally *v*P; 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). 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

Mandarin SFPs

Mandarin SFPs come in three classes (Chao, 1968; Hu, 1981; Zhu, 1982, a.o.). They are strictly ordered ($SFP_1 < SFP_2 < SFP_3$) and SFP in each class are in complementary distribution.

(1) **Three classes of Mandarin Chinese SFPs:**

    a. <u>SFP_1: low SFP</u>
       sentence-final *le*, recent past *láizhe*, durative *ne*, 'only' *éryǐ*

    b. <u>SFP_2: clause-type</u>
       polar question *ma*, imperative *ba*

    c. <u>SFP_3: speaker/addressee attitude</u>
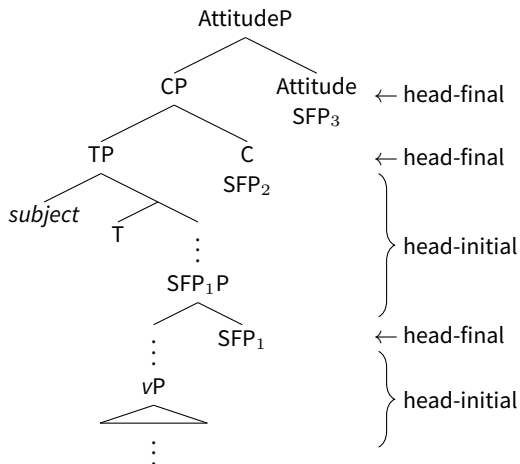   impatient *ou*, softening *a*, gentle reminding *ei*

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 (SFP_1), which can be embedded, and high SFP (SFP_2 and SFP_3). Paul (2014, 2015) proposes that SFPs realize a three-layer split CP, following Rizzi (1997) a.o.

Proposal

☞ The low SFPs (SFP_1) are **clause-medial, between *v*P and TP**. SFP_1 is the head of the lower phase of the clause.

(2)

AttitudeP

CP — Attitude SFP_3 ← head-final

TP — C SFP_2 ← head-final

subject — T ⋮ } head-initial

SFP_1P

⋮ — SFP_1 ← head-final

*v*P } head-initial

⋮

8

Roadmap

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, predict scope over all Ops in TP:**
$[_{CP} [_{TP} \dots Op \dots] SFP_1]$ $\qquad \Rightarrow {}^{\checkmark}SFP_1 > Op, {}^{*}Op > SFP_1$

(4) **If low SFPs are clause-medial, predict scope over some, not all:**

a. "... Op ... SFP_1" with a lower operator (Op):
$[_{CP} \dots [_{SFP1P} [\dots Op \dots] SFP_1]]$ $\qquad \Rightarrow {}^{\checkmark}SFP_1 > Op, {}^{*}Op > SFP_1$

b. "... Op ... SFP_1" with a higher operator (Op):
$[_{CP} \dots Op \dots [_{SFP1P} \dots SFP_1]]$ $\qquad \Rightarrow {}^{*}SFP_1 > Op, {}^{\checkmark}Op > SFP_1$

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.):

(5) **The semantic contribution of SFP *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 xǐhūan mùguā le.
I   like   papaya LE

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

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.'   L&T 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)

Negation

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

   a. *bù…le*: $^\checkmark$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, $^\checkmark$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.'

14

Negation

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

    a. $[\![(9a)]\!]$ = LE(p), where p = NEG('I miss home')
         <u>Asserts:</u> p is true now $\iff$ I do not miss home now
         <u>Presupposes:</u> in the immediate past, p was false $\iff$

         I *did* miss home immediately before

    b. $[\![(9b)]\!]$ = NEG(LE(p)), where p = 'I miss home'
         <u>Asserts:</u> NEG(p is true now) $\iff$ I do not miss home now
         <u>Presupposes:</u> 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):**

    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.'
        * '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.'

Modals

A similar contrast with universal modals:

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

  a. <u>Deontic MUST *xūyào...le:*</u>   ✓LE > MUST, *MUST > LE

     Wǒ míngtiān   **xūyào** qù Chéngdū **le**.
     I   tomorrow MUST   go Chengdu LE

     ✓ 'It's now the case that tomorrow, I must go to Chengdu.'
     * 'It will be the case that tomorrow, I must go to Chengdu.'

  b. <u>WILL *yào...le:*</u>   *LE > WILL, ✓WILL > LE

     Wǒ míngtiān   **yào** qù Chéngdū **le**.
     I   tomorrow WILL go Chengdu LE

     * 'It's now the case that tomorrow, I will go to Chengdu.'
     ✓ 'Tomorrow, I will be going to Chengdu.'

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

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 *shénme*
        s/he want eat what

        i.   'What did s/he want to eat?'

        ii.   * 'S/he wanted to eat something/anything.'

    b. Tā   **bù** xiǎng chī *shénme*
        s/he NEG want eat what

        i.   'What didn't s/he want to eat?'

        ii.   'S/he didn't want to eat anything.'

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

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 *shénme*
   s/he see   what

    i.   'What did s/he see?'

    ii.   * 'S/he saw something.'

b. Tā   kàndào *shénme* **le**.
   s/he see   what   LE

'S/he saw something.'[1]

Subjects

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

  a. Tā   shūo *shénme* **le**
      s/he say what   LE

     i.   'What did s/he say?'

     ii.   'S/he said something.'

  b. {*Shéi*, *shénme* ren}   shūo huà   **le**
      who what   person say speech LE

     i.   'Who spoke?'

     ii.   * 'Someone spoke.'

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

20

Alternative question disjunction

(17) **Examples of *háishì* 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?'

b. *v*P disjunction:

Nǐ (shì) [[_vP_ 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?'

Alternative question disjunction

Two features to note:

- Different size constituents can be disjoined by *háishì*.[2]
- 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**] **háishì** [gēn   nánpéngyǒu 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?'

Alternative question disjunction

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

☞ 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

Sentence-final 'only' *éryǐ*

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 watches TV.' $\Rightarrow$ He doesn't do anything else.

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

      'He only watches TV.' $\Rightarrow$ 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.[3] See Tsai (2004) on *zhǐ* and Erlewine (2010) on *éryǐ*.

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

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

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

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

      'I can only read [English]$_F$.' $\Rightarrow$ 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.

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

   a. <u>ONLY > NEG</u>:
      I **only don't** drink [tea]$_F$. $\Rightarrow$ I drink everything else.

   b. <u>NEG > ONLY</u>:
      I **don't only** drink [tea]$_F$ $\Rightarrow$ I also drink other things (not necessarily everything else).

Negation

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. <u>*bù...éryǐ*</u>:   ✓ONLY > NEG, *NEG > ONLY

      Wǒ **bù** 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.

   b. <u>*búshì...éryǐ*</u>:   *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*: $\checkmark$ONLY > ABLE, *ABLE > ONLY

         Zhāngsān **néng** shūo [Fǎwén]*F* **éryǐ**.
         Zhangsan ABLE speak French ONLY

         $\checkmark$ 'Zhangsan is only able to speak [French]F.'
         * 'Zhangsan is able to only speak [French]F.'

    b. MAY *kěnéng...éryǐ*:   *ONLY > MAY, $\checkmark$MAY > ONLY

         Zhāngsān **kěnéng** shūo [Fǎwén]*F* **éryǐ**.
         Zhangsan MAY speak French ONLY

         * 'It's only possible that Zhangsan speaks [French]F.'
         $\checkmark$ 'It's possible that Zhangsan only speaks [French]F.'

☞ *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).

(26) *Only* **must associate with a focused constituent in its scope:**
  a.   I can only [read]$_F$ English.
  b.   I can only read [English]$_F$.
  c.   * [I]$_F$ can only read English.
       Intended: 'Only [I]$_F$ can read English.'

(27) **Sentence-final *éryǐ* is unable to associate with the subject:**
  * [Wǒ (yī   ge rén)]$_F$ hùi niàn Yīngwén **éryǐ**.
  I   one CL person can read English ONLY
  Intended: 'Only [I (one person)]$_F$ can read English.'

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*."

Subjects

If a subject stays in a postverbal position, as is possible with indefinite subjects of unaccusatives (Travis, 1984), it can be the focus 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.'   ✓subject DOU > ONLY
* 'Only [black]$_F$ coffee is such that we all drink it.' *ONLY > subject DOU

☞ Preverbal subjects are outside of the scope of *éryǐ*.   31

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

    a. <u>Disjunction of extended VP:</u>

        Nǐ (shì) [[$_{vP}$ yào yī wǎn fàn] **háishì** [$_{vP}$ 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. <u>DP disjunction:</u>

        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)

Alternative question disjunction

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

  a. <u>Disjunction of extended projections of VP:</u>

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

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

  b. <u>Disjunctions of DPs:</u>

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

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

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

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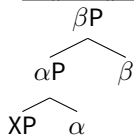- Below the preverbal subject

Roadmap

Chinese SFPs have been important in the discussion of the *Final-over-Final Constraint* (FOFC), 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:**
a. ✓HF over HF:

βP
├── αP — β
└── XP — α

b. ✓HI over HI:

βP
├── β — αP
└── α — XP

c. ✓HI over HF:

βP
├── β — αP
└── XP — α

d. *HF over HI:

βP
├── αP — β
└── α — XP
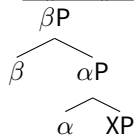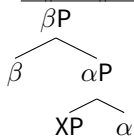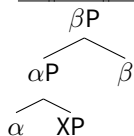
The Final-over-Final Constraint

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

   a.   <u>Aux-V-O:</u>

      ✓ Milloin Jussi olisi   kirjoittanut romaanin?
        when   Jussi would.have written   a novel

      'When would Jussi have written a novel?'

   b.   <u>Aux-O-V:</u>

      ✓ Milloin Jussi olisi   romaanin kirjoittanut?
        when   Jussi would.have a novel   written

   c.   <u>O-V-Aux:</u>

      ✓ Milloin Jussi romaanin kirjoittanut olisi?
        when   Jussi a novel   written   would.have

   d.   <u>V-O-Aux:</u>

      * Milloin Jussi kirjoittanut romaanin olisi?
        when   Jussi written   a novel   would.have

*V-O-Aux also holds 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**.

Reactions to FOFC exceptions

☞ 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 $[_{\beta P} [_{\alpha P} \alpha \text{ XP}] \beta]$, one could conclude:

   a. FOFC is not a real constraint on grammar (or not active in my language);

   b. The head β is not subject to FOFC evaluation; or

   c. 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).

- Most previous work on Chinese SFPs and FOFC have taken the second approach, by somehow exempting SFPs (36b).

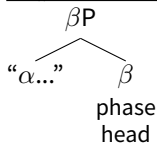☞ I advocate for the third approach (36c): **SFPs occur at the edges of FOFC domains, which coincide with phase edges**.

(37) **Proposed structure:** (=2)

Let C (SFP_2) and SFP_1 be phase heads; the latter heading the lower phase of the clause, traditionally called *v*P. I take complements of phase heads to be Spell-Out domains (Chomsky, 2000, 2001).

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

phase head　　　　　*phase head*
　　↓　　　　　　　　↓
$[_{CP}$ C(=SFP_2) $[_{TP}$ T ... $[_{SFP1P}$ SFP_1 ... $[_{vP}$ *v* $[_{VP}$ V ...

Spell-Out domain　*Spell-Out domain*

Spell-Out and FOFC domains

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 PH β: $\quad \rightarrow \quad$ b. αP undergoes Spell-Out:

$$\alpha P$$
$$\alpha \quad XP$$

$$\beta$$
phase
head

$$\beta P$$
"α..." $\quad \beta$
phase
head

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

Explaining the positions of SFPs

☞ 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.

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).

A potential problem: *V-O-Aux again

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.

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.

Thank you! Questions?

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