Sentence-final particles at the *v*P phase edge

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I propose that the low class of Sentence-Final Particles (SFPs) in Mandarin Chinese (sentence-final *le*, *éryǐ*, *láizhe*...) are head-final heads in the extended *v*P periphery, rather than in the CP domain as previously analyzed, substantiating a prediction made by Hsieh & Sybesma (2011). Evidence for the proposal comes from the semantic scope of sentence-final *éryǐ* and *le* with respect to negation and modals. Consequences for the syntax of Chinese SFPs and for the Final-over-Final-Constraint (FOFC) are discussed.

1. Introduction

The syntactic status of Sentence-Final Particles (SFPs) in Mandarin Chinese has long been an area of active debate in Chinese linguistics. SFPs have been analyzed as C^0 heads (Lee, 1986; a.o.) which are linearized on the right. However, given the rigidly head-initial character of Mandarin clause structure (Huang, 1982; a.o.), the sentence-final position of these items is conspicuous.

In this paper I propose that a subset of Mandarin SFPs are in the extended *v*P periphery, rather than in the CP periphery as commonly assumed. Specifically, this involves the "low" class of SFPs, including sentence-final *le*, *éryǐ*, and *láizhe*. Unlike other SFPs, which are clause-typing (Force) and Attitude markers that clearly correspond to CP-peripheral heads cross-linguistically, the low class includes aspectual and focus-sensitive operators. I present data from the literature that shows that sentence-final *le* and *éryǐ* 'only' takes scope below the high negation *búshì*, and *le* scopes below certain modals. This data from the compositional semantic scope of these low SFPs is incompatible with the assumption that they are in the extended CP periphery.

In a final section, I discuss important consequences of this work for the theory of the Final-over-Final Constraint (FOFC; Holmberg, 2000; Biberauer et al 2008, 2009), a proposed universal constraint on structure-building, and I show how my proposal for the low class of SFPs substantiates a prediction made by Hsieh & Sybesma (2011).

2. Background on Mandarin Chinese SFPs

SFPs in Mandarin has traditionally been organized into three classes (Chao, 1968; Hu, 1981; Zhu, 1982; a.o.). Descriptively, I will refer to these classes here as SFP_1, SFP_2, and SFP_3. The items within each class are in complementary distribution with one another, and the relative word order between these classes is fixed: $SFP_1 < SFP_2 < SFP_3$. I refer the reader to Paul (2014) and references therein for demonstrations of these basic distributional facts.[1] The table in (1), based on Paul (2014), gives some representative members for each class:

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

SFP_1	SFP_2: clause-type	SFP_3: attitude
le currently relevant state	*ma* interrogative	*ou* warning
láizhe prior knowledge	*ba* imperative	*(y)a* astonishment
éryǐ only	*ne* follow-up question	*ne* exaggeration
...	...	…

Among these three classes, SFP_2 has received both the earliest and the widest attention. Theoretically, Lee (1986) first proposed that the sentence-final *ma* is an interrogative clause-typing C head and Tang (1988) and Cheng (1991) extend this claim to other SFP_2. Paul (2014) analyzes all Mandarin SFPs as head-final heads, and proposes that each class of SFP corresponds to a distinct head in a split CP system, following the work of Rizzi (1997) and others. She proposes that SFP_1 occupies a head in the split CP called "C_{low}," SFP_2 realizes Force, and SFP_3 realizes Attitude.[2]

(2) **Paul's (2014) proposal for Mandarin SFPs in a three-layer split CP:**
[[[TP C_{low}] Force] Attitude]
$\quad\quad$ SFP_1 $\quad$ SFP_2 $\quad\quad$ SFP_3

There are a number of clues that SFP_1 differs categorically from SFP_2 and SFP_3. First, the items in SFP_2 and SFP_3 each seem to form a natural class: SFP_2 includes primarily clause-typing markers, and items in SFP_3 express speaker attitude. Both of these functions are cross-linguistically commonly realized by heads in the extended CP domain (Rizzi, 1997; a.o.). In contrast, the items in SFP_1 resist a unified semantic

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[1] The arguments for *éryǐ* being an item in SFP_1 are in Erlewine (2010).

[2] It has been argued that *head-initial* complementizers exist for embedded complement clauses, e.g. *shuō* (Simpson & Wu, 2002; Hsieh & Sybesma, 2011), although this characterization has been contested, for example in Paul (2014) footnote 26. The proposal and arguments presented here do not hinge on the status of these items. But see section 5 below for discussion of the relation of my proposal to the theory of Hsieh & Sybesma (2011).

characterization. Many items in SFP$_1$ can be characterized primarily as tense or aspect markers, but SFP$_1$ also includes the focus-sensitive operator *éryǐ* 'only' (Erlewine, 2010).

Second, items in SFP$_2$ and SFP$_3$ are only available in root clauses, while SFP$_1$ is not restricted to root contexts.[3] This contrast is illustrated below in example (3) with the sentence-final 'only' *éryǐ* (SFP$_1$) and example (4) with the interrogative *ma* (SFP$_2$):

(3)　**SFP$_1$ *éryǐ* 'only' can be part of the matrix or embedded clause:**
　　Wǒ gàosù le　yīge háizi tā　kěyǐ chī yīge dàngāo *éryǐ*.　　(Erlewine, 2012)
　　I　told　PRF　one child s/he can　eat　one　cake　　ONLY
　　✓ 'I told one child that he can *only* eat [one cake]$_F$.'
　　✓ 'I *only* told [one child]$_F$ that he can eat one cake.'
(4)　**Interrogative SFP$_2$ *ma* must be interpreted as part of the matrix clause:**
　　Nǐ　bù　zhīdào tā　　lái　*ma*?　　　(Li & Thompson 1981, p. 557)
　　you NEG know　s/he　come INTERROGATIVE
　　✓ 'Do you not know that s/he's coming?'
　　* 'You don't know whether or not s/he's coming.'

In examples (3) and (4), there is an embedded complement clause and a SFP at the end of the utterance. We observe an attachment ambiguity in (3): the sentence-final *éryǐ* could be attached to the matrix clause, associating with 'one child;' or it can be part of the embedded complement clause of 'tell,' associating with 'one cake.' In contrast, example (4) with sentence-final *ma* in a similar configuration exhibits no such ambiguity. The interrogative clause-typing *ma* must be part of the matrix clause, even though the embedding predicate 'know' can embed both declarative and interrogative clauses. See Paul (2014) for further discussion of this difference.

A third difference—that SFP$_1$, but not SFP$_2$ or SFP$_3$, interacts scopally with negation and modals[4]—will form the motivation for the proposal presented in this paper.

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[3] Paul (2014) also discusses items that may be analyzed as exclusively non-root SFPs, such as the *dehuà* of conditional clauses and the particle *de* in relative clauses and the *shi…de* "cleft" construction (Paul & Whitman, 2008). I will not discuss such items here.

[4] Paul (2014) additionally notes that the SFP$_1$ *láizhe*, a marker referring to the recent past or a prior state of knowledge, is also incompatible with the high negation *méi(yǒu)*. I will not reproduce these arguments here for reasons of space.

3. Proposal

I propose that the items in SFP_1 occupy a head in the extended vP periphery of Mandarin clauses,[5] in contrast to SFP_2 and SFP_3 which are in the extended CP periphery. (See section 5 for discussion of an alternative where SFPs are right-adjoining adverbs.) This proposal is schematized in (5) below. The heads Force and Attitude are heads in a split CP, following Rizzi (1997) and Paul (2014). Due to the lack of a unified characterization of SFP_1—in particular due to the sentence-final 'only' *éryĭ* being a part of this class—I will refrain from naming the head, labeling it simply SFP_1.

(5) $[\, [\, [\, [_{TP} \, \ldots \, [_{SFP1P} \, vP \, SFP_1 \,] \,] \, Force \,] \, Attitude \,]$
  $ SFP_1 SFP_2 SFP_3$

The proposal is a refinement of Paul's (2014) proposal, the first comprehensive theory for Mandarin Chinese SFPs which addresses all three classes of SFPs, reviewed above and schematized in (2). The difference is the placement of SFP_1 in a position *inside* TP, above vP but below the CP domain. This difference is motivated by the scope of operators in SFP_1, which I will present in section 4.

This proposal for SFP_1 accords structurally with previous analyses of the SFP_1 *le* as a head-final head below the CP-domain (Asp for Hsieh, 2001, Grano, 2012; T in Tang, 1998) and Paul & Whitman's (2008) analysis of the SFP_1 *de* in the *shì…de* construction as an Asp head "in a position directly above the base position of the subject (Spec,vP)." It also substantiates a prediction made by Hsieh & Sybesma's (2011) analysis of SFPs, which I will discuss in section 5.

The heads SFP_1, Force, and Attitude are linearized on the right of their complements, unlike other heads in the clausal spine. Here I will stay agnostic towards *how* these heads are linearized to the right: these heads may be lexically specified to be head-final, as illustrated in (5), or may alternatively be head-initial but then obligatorily front their complements (Simpson & Wu, 2002; Lin, 2006; Hsieh & Sybesma, 2011; a.o.). I will, however, address the question of *why* it is these positions in the clause, and only these positions, which allow clausal heads to be linearized to the right. I argue that this follows from a phase-based characterization of the Final-Over-Final Constraint, to be discussed in section 5.

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[5] What is important here is that SFP_1 be at the edge of the lower phase in Mandarin clauses. Here I use the common label vP to refer to this lower phase. See footnote 11 and section 5.

4. Motivation

If the items in SFP_1 are in the extended CP, we predict that they necessarily scope *over* all scope-bearing operators in the clause's TP (6). In contrast, the proposal put forward in section 3, schematized above in (5), makes the prediction that the items in SFP_1 will take scope above vP-internal operators (7a), but *under* operators above vP (7b).

(6)   **If SFP_1s are in CP, we predict scope over all TP-internal operators:**
         $[\, [_{TP} \ldots Op \ldots] \, C_{low} = SFP_1 \,]$ ➔ $^\checkmark SFP_1 > Op, {*}Op > SFP_1$

(7)   **If SFP_1s are at vP edge, we predict scope over some and *under* others:**
         a. $[_{TP} \, [_{SFP1P} \, [_{vP} \ldots Op \ldots] \, SFP_1 \,] \,]$ ➔ $^\checkmark SFP_1 > Op, {*}Op > SFP_1$
         b. $[_{TP} \ldots Op \ldots [_{SFP1P} \, vP \quad SFP_1 \,] \,]$ ➔ ${*}SFP_1 > Op, {}^\checkmark Op > SFP_1$

In the following subsections I will show that SFP_1 participates in scope alternations of the form predicted by (7), supporting the current proposal.

4.1. The scope of sentence-final *éryǐ* 'only'

I begin with a discussion of the sentence-final 'only' word, *éryǐ*. In Erlewine (2010), I showed that *éryǐ* is a member of the first class of SFPs: it is in complementary distribution with other items in SFP_1 such as sentence-final *le* and is strictly ordered before the clause-typing (SFP_2) and attitude (SFP_3) markers. The semantics of 'only' is scope-bearing and affects the truth conditions of the utterance (Horn, 1969; a.o.), making it a good item to use to diagnose the structural scope of SFP_1. I observed that *éryǐ* takes obligatorily wide scope with respect to the negation *bù*, but takes obligatorily narrow scope with respect to the higher negation *búshì*:

(8)   **SFP *éryǐ* 'only' takes scope above *bù* but below *búshì* (Erlewine, 2010):**
         a.   Wǒ *bù*   xǐhūan chī RÒUBĀO$_F$ *éryǐ*. $^\checkmark éryǐ > $ NEG, ${*}$NEG $ > éryǐ$
            I   NEG like   eat [meat buns]$_F$ ONLY
            $^\checkmark$ 'I *only don't* like to eat [meat buns]$_F$ ... I eat everything else.'
            * 'I *don't only* like to eat [meat buns]$_F$ ... I also eat (some) other things.'
         b.   Wǒ *búshì* xǐhūan chī RÒUBĀO$_F$ *éryǐ*. ${*}éryǐ > $ NEG, $^\checkmark$NEG $ > éryǐ$
            I   NEG' like   eat [meat buns]$_F$ ONLY
            * 'I *only don't* like to eat [meat buns]$_F$ ... I eat everything else.'
            $^\checkmark$ 'I *don't only* like to eat [meat buns]$_F$ ... I also eat (some) other things.'

The only difference between (8a) and (8b) is the form of the negation chosen: *bù* and *búshì*, respectively. The word orders in (8a–b) indicate no difference in the relative structural position of the negation with respect to 'only.' Under the view that all SFPs are in the extended CP, *éryǐ* taking scope below negation in (8b) is an unexpected syntax-semantics mismatch.

The proposal put forth here for the position of SFP$_1$ including *éryǐ* in the extended *v*P periphery offers a simple solution to the contrast observed in (8). The contrast in (8) is transparently explained by the different structural heights of *bù* and *búshì*. The proposed structures for (8a) and (8b) are schematized below in (9). In this way, a fixed position for *éryǐ* can be adopted and no syntax-semantics mismatch occurs.

(9) **Explaining the contrast in (8):**
[TP … (*búshì* = NEG') … [[$_v$P … (*bù* = NEG) … VP] *éryǐ*]]
a. "... *bù* ... *éryǐ* " (8a) ➔ *éryǐ* > NEG
b. "... *búshì* ... *éryǐ* " (8b) ➔ NEG > *éryǐ*

Independent evidence corroborates the structural positions of *bù* and *búshì* in (9). The lower negation *bù* is adjoined to *v*P/VP and cliticizes to the verb (Hsieh, 2001, and references therein), and therefore is below the position of *éryǐ*. In contrast, *búshì* is structurally higher than *v*P (Yeh, 1992; a.o.) and, I argue, necessarily above *éryǐ*.[6] That *búshì* is higher than *bù* can be straightforwardly observed in clauses with both negations:

(10) Wǒ *búshì bù* xǐhūan chī ròubāo.
I   NEG' NEG like   eat meat buns
'I *don't not* like to eat meat buns… I'd just rather have something else.'

It has been independently argued that exclusive operators such as 'only' must associate with material in their c-command domain at LF (Tancredi, 1990; Erlewine, to appear). One prediction of this analysis is that *éryǐ* can only associate with material in *v*P, and therefore cannot associate with subjects. This prediction is borne out:[7]

(11) a. ✓ Wǒ aì   NǏ$_F$ *éryǐ*.   b. * WǑ$_F$ aì   nǐ   *éryǐ*.
I   love [you]$_F$ ONLY   [I]$_F$ love you ONLY
'I *only* love [you]$_F$.'   Intended: '[I]$_F$ *only* love you.'

However, at the NACCL meeting, Jo-Wang Lin pointed out that *éryǐ* is able to associate with subjects in sentences such as (12) below with the additional pre-subject 'only' operator, *zhǐyǒu*:

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[6] Assuming that SFPs are clausal heads, this relationship between *búshì* and *éryǐ* is independently necessitated by the Final-over-Final Constraint (FOFC). Assuming that *búshì* and *éryǐ* are both within the same Spellout domain (above *v*P and below CP), FOFC requires that *búshì* be structurally higher than *éryǐ*. If the heads were in the other order, *éryǐ* would form a head-final projection above the head-initial projection headed by *búshì* or its component *shì*, in violation of FOFC. See section 5 for more on FOFC.

[7] Tang (1998, p. 44*ff*) makes a similar claim regarding the Cantonese sentence-final 'only' *zaa3*.

(12) ˊ Zhǐ yǒu WǑ$_F$ aì nǐ *éryǐ*.
ONLY exists [I]$_F$ love you ONLY
'*Only* [I]$_F$ love you… no one else loves you.' (cf 11b)

I propose that the *zhǐyǒu* in (12) involves the addition of another *v*P layer above the subject, headed by the existential verb *yǒu*, thereby hosting a position for *éryǐ* which does c-command the subject. It therefore is not a counterexample to the proposal put forward here for the position of SFP$_1$, and therefore of *éryǐ*. Without the higher *zhǐyǒu*, subject association with sentence-final *éryǐ* is not possible, as observed in (11) above.

4.2. The scope of sentence-final *le*

Similar evidence comes from the scope of sentence-final *le*, which is often referred to as a Currently Relevant State marker following Li & Thompson (1981) and is one of the best-studied items in SFP$_1$.[8] As with sentence-final *éryǐ*, we will see that *le* takes scope above operators in the *v*P domain, but below scope-bearing operators higher in the clause. This is unexpected under the view that all SFP$_1$ are in the CP periphery but is predicted by the proposal that SFP$_1$, unlike higher SFPs, are in the extended *v*P periphery.

There are a variety of proposals for characterizing the semantic contribution of sentence-final *le*. Here for concreteness I will follow the proposal of Soh & Gao (2006), which is also elaborated on in Soh (2009):

(13) **Semantics for sentence-final *le* (Soh & Gao, 2006; extended in Soh, 2009):**
Given a proposition *p*:
Asserts: *p* is true; and
Presupposes: there is "an immediate past event or state" where *p* is false.

Consider a basic example with *le* in (14), below. The sentence asserts that the speaker now likes papaya. In addition, the sentence-final *le* contributes the presupposition that the speaker did *not* like papaya at an immediately prior point.

(14)   Wǒ xǐhūan mùguā le.   (Soh & Gao, 2006)
I   like   papaya LE
Asserts: 'I (now) like papaya.'
Presupposes: 'I did not like papaya in the immediate past.'

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[8] Tradition dictates that at this point a footnote state that this sentence-final *le* is distinct from the verbal suffix *le*. In all examples here, *le* is placed after a postverbal object to avoid this confound.

With this basic semantic description in mind, we now turn to a contrast observed in Soh & Gao (2006) regarding the interpretation of sentence-final *le* with respect to high and low negation. Examples (15a) and (15b) below differ only in the choice of negation used, leading to a subtle difference in interpretation: the two express identical assertions but carry different presuppositions. Note that in terms of linear order, the sentences are identical in terms of the relative position of negation and sentence-final *le*.

(15) **SFP *le* takes scope above *bù* but below *búshì* (Soh & Gao, 2006):**

   a. Tā *bù*   xiǎng jiā   *le*.   ✓*le* > NEG, *NEG > *le*
      s/he NEG miss   home LE
      <u>Asserts:</u>   'S/he does not miss home now.'
      <u>Presupposes:</u> 'S/he *did* miss home before.'
   b. Tā *búshì* xiǎng jiā   *le*.   **le* > NEG, ✓NEG > *le*
      s/he NEG' miss   home LE
      <u>Asserts:</u>   'S/he does not miss home now.'
      <u>Presupposes:</u> 'S/he did *not* miss home before.'

Soh & Gao (2006) argue that the difference between (15a) and (15b) should be thought of as a difference in scope between negation and *le*. In example (15a), *le* takes scope over negation, and therefore we yield the presupposition that "s/he does not miss home" was false in the immediate past, i.e. that s/he *did* miss home in the immediate past. In contrast, in example (15b), negation takes scope over *le*. The presupposition introduced by *le* therefore is that "s/he did miss home" was false in the immediate past, i.e. that s/he did *not* miss home in the immediate past. This presupposition will then project through the higher negation. These assertions and presuppositions can be computed compositionally as follows:

(16) **Semantic interpretations of (15), based on (13):**

   a. ⟦(15a)⟧ = LE(*p*), where *p* = NEG('s/he misses home')
      <u>Asserts:</u>   *p* is true now ⇔
                 s/he does not miss home now
      <u>Presupposes:</u> in the immediate past, *p* was false ⇔
                 s/he *did* miss home immediately before
   b. ⟦(15b)⟧ = NEG(LE(*p*)), where *p* = 's/he misses home'
      <u>Asserts:</u>   NEG(*p* is true now) ⇔
                 s/he does not miss home now
      <u>Presupposes:</u> in the immediate past, *p* was false ⇔
                 s/he did *not* miss home immediately before

The contrast between the presuppositions in (15) shows us that sentence-final *le* must take scope above the lower negation *bù* but below the higher negation *búshì*, and

parallels the contrast observed with *éryĭ* in the previous section. These scope relations are predicted by the proposal put forward here, where SFP$_1$ including *le* occupies a position in the extended *v*P periphery, necessarily above the lower negation *bù* but below the higher negation *búshì*. In contrast, if *le* were in the CP periphery, we predict it to take scope over both forms of negation.

(17)   **Explaining the contrast in (15):**
[$_{TP}$ … (*búshì* = NEG') … [[$_{vP}$ … (*bù* = NEG) … VP] *le*]]
a.   "*... bù ... le* " (15a)   ➔   *le* > NEG
b.   "*... búshì ... le* " (15b)   ➔   NEG > *le*

Lin (2011) observes a similar contrast regarding the scope of *le* with respect to different modals. Consider the following pair of sentences in (18), varying only in the choice of existential modal: the circumstantial ability modal *néng* 'able to' and the epistemic modal *kĕnéng* 'may.'[9]

(18)   **SFP *le* takes scope above *néng* but below *kĕnéng* (Lin, 2011):**[10]
a.   Zhāng Sān *néng*   qù Táibĕi le.   ✓*le* > ABLE TO, *ABLE TO > *le*
Zhang San is able to go Taipei LE
✓ 'It has become the case that Zhang San is able to go to Taipei.'
Asserts: 'Zhang San is able to go to Taipei.'
Presupposes: 'ZS was not able to go to Taipei in the immediate past.'
* 'Zhang San is able to have gone to Taipei.'
b.   Zhāng Sān *kĕnéng* qù Táibĕi le.   **le* > MAY, ✓MAY > *le*
Zhang San may   go Taipei LE
* 'It has become possible that Zhang San goes to Taipei.'
✓ 'Zhang San may have gone to Taipei.'
Asserts: 'Zhang San may have gone to Taipei.'
Presupposes: 'Zhang San had not gone to Taipei in the immediate past.'

While *le* takes scope over the circumstantial modal *néng* 'able to'—reflected by the presupposition introduced by *le* commenting on the previous inability of Zhang San to go to Taipei—it takes scope under the epistemic modal *kĕnéng* 'may.' Grano (2012: section 5.4.4) argues that both (18a) and (18b) are monoclausal and that this contrast is best explained by these modals occupying different positions in the clause, with *le* in a

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[9] Lin (2011) presents the contrast in (18) as an argument for a finite/non-finite distinction in Mandarin Chinese, and his characterization of the contrast is more complex. See Lin (2011) for the details of this view and Grano (2012) for arguments against this approach.

[10] One-line translations here are from Lin (2011). The phrasing 'It has become the case that' in the faithful English translation for (18a) reflects *le* taking scope over the modal.

structural position above *néng* and below *kěnéng*. This accords with the structural hierarchy of modals observed crosslinguistically: epistemic modals (here, *kěnéng*) are structurally higher in the clause, whereas circumstantial modals (here, *néng*) are structurally lower in the clause (see Grano, 2012, and references therein).

Grano's (2012) analysis of this contrast requires that SFP_1 such as sentence-final *le* occupy a position above some modals such as *néng* but below others such as *kěnéng*. If *le* were in the CP domain, we would expect it to take scope over all modals and we would not predict the contrast in (18). In contrast, the correct scope relations for (18) are predicted by the proposal put forward here, if we analyze the modal *néng* within the lower (*v*P) phase and *kěnéng* above it.[11] This is independently motivated by Tsai's (2012) work on the cartography of modals in Mandarin Chinese, which identifies ability modals (*néng*) within *v*P and epistemic modals (*kěnéng*) in a higher position in the clause.

(19) **Explaining the contrast in (18):**
$[_{TP} \ldots (\text{*kěnéng*} = \text{MAY}) \ldots [[_{vP} \ldots (\text{*néng*} = \text{ABLE TO}) \ldots \text{VP}] \text{*le*}]]$
a. "*... néng ... le*" (18a) ➔ *le* > ABLE TO
b. "*... kěnéng ... le*" (18b) ➔ MAY > *le*

4.3. Summary of motivations
In this section I presented evidence that the items in SFP_1 interact scopally with material in the TP. These contrasts support the view that SFP_1 (*éryǐ*, *le*, etc.) occupies a head in the extended *v*P periphery, illustrated schematically in (7), repeated here as (20):

(20) **SFP_1 scopes over some and *under* others, supporting the proposal:**
a. $[_{TP} [_{SFP1P} [_{vP} \ldots Op \ldots] SFP_1]]$ ➔ $^{\checkmark}SFP_1 > Op, *Op > SFP_1$
b. $[_{TP} \ldots Op \ldots [_{SFP1P} vP \quad SFP_1]]$ ➔ $*SFP_1 > Op, ^{\checkmark}Op > SFP_1$

Having motivated that the low class of sentence-final particles, SFP_1, occupy a position in the extended *v*P periphery, important questions remain regarding the syntax of SFPs. Given the overwhelmingly head-initial nature of Mandarin Chinese clause structure (Huang, 1982; a.o.), why are apparently head-final heads allowed at these positions—at the edge of the *v*P periphery (SFP_1) and the edge of the CP periphery (SFP_2 and SFP_3)—and not at other positions in the clause? I will explore this question in the next section.

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[11] My analysis here relies on this boundary coinciding with a phase boundary, though the precise label for this phase edge is not crucial for my proposal. Recall that "*v*P" is used here as a label to refer to the first phase in Mandarin clauses (footnote 5).

5. SFPs and the Final-Over-Final Constraint

  Here I have proposed that the the low class of Mandarin SFPs occupy a position in the vP periphery and presented evidence from the semantic scope of SFP_1 to support this view. In this section I will discuss some consequences of this proposal.

  I follow the common view that Chinese SFPs are head-final heads in the clausal spine (Lee, 1986; Tang, 1988; Cheng, 1991; Paul, 2014; and references therein). An alternative would be to analyze SFP as right-adjoining adverbs. However, I believe this approach is untenable for three reasons: (a) SFPs are a small, closed class; (b) uncontroversially adjoined adverbs are not linearized on the right in Mandarin clause structure, except low in the VP (Ernst, 2002); and (c) the items in each of the three classes of SFPs are in complementary distribution with other items in their class; i.e. a clause may only have one SFP_1 at a time (Paul, 2014; Erlewine, 2010 for *éryǐ*). Adjunction should be able to apply recursively, as long as the adjuncts are independently licensed in the position and they lead to a meaningful semantic interpretation. Given that the semantics of various items in SFP_1 are compatible with one another, their complementary distribution is unexpected under an adverb analysis.

  Under the view that they are head-final heads, Chinese SFPs are an anomalous creature given the otherwise head-initial clause structure of Chinese (Huang, 1982; a.o.). Moreover, Chinese SFPs would instantiate a cross-linguistically rare configuration with head-final heads taking head-initial projections as their complements. In fact, this configuration is precisely what is predicted to be impossible under the *Final-over-Final Constraint*, a universal constraint on structure building and word order proposed by Holmberg (2000) and supported by Biberauer, Holmberg, & Roberts (2008) and Biberauer, Newton, & Sheehan (2009):

(21) **The Final-over-Final Constraint (FOFC) (Holmberg, 2000):**
   If α is a head-initial phrase and β is a phrase immediately dominating α, then β must be head-initial. If α is a head-final phrase, and β is a phrase immediately dominating α, then β can be head-initial or head-final.

  Informally, FOFC allows for the existence of three types of linguistic structure: strictly head-initial (HI), strictly head-final (HF), and mixed structures with head-initial projections above head-final projections. This is schematized as follows:

(22) **Predictions of the Final-over-Final Constraint:**
   a. ✓<u>HF over HF:</u> b. ✓<u>HI over HI:</u> c. ✓<u>HI over HF:</u> d. * <u>HF over HI:</u>
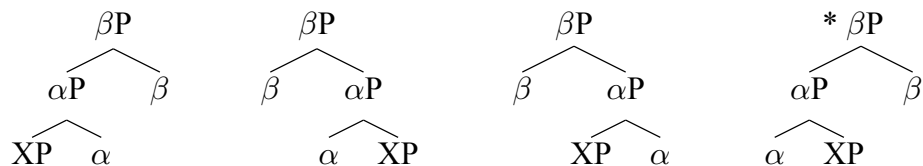
The effects of FOFC can be observed both across languages and within individual languages with relatively free word orders. See Biberauer et al (2008, 2009) for examples supporting FOFC from both synchronic and diachronic grammar.

That Chinese SFPs might counterexemplify the proposed universal FOFC has not gone unnoticed (Biberauer et al, 2008, 2009; Bailey, 2010; Paul, 2014; a.o.). Biberauer et al (2008, 2009) discuss the clause-typing Mandarin SFP_2 in this light, and propose that SFP are not counterexamples to FOFC because they are at a boundary between major categories (nominal versus verbal). The insight here is that FOFC does not hold across structures of all sizes. For example, consider the German in (23). If the entire tree were subject to evaluation by FOFC all together, we would predict the structure in (23) to be ungrammatical, given the head-final VP that dominates a head-initial DP.

(23)   **A potential exception to FOFC in German (Biberauer et al., 2008):**
Johann hat [$_{VP}$ [$_{DP}$ den Mann] gesehen].
John   has   the man   seen
'John has seen the man.'

Biberauer et al propose that FOFC should hold only within the spine of extended projections of the same major category—nominal or verbal—but not across major-category boundaries. The grammaticality of the German structure in (23) is therefore due to the object DP being nominal and therefore categorically distinct from the verbal projection above it. Discussing the Mandarin clause-typing SFP_2, Biberauer et al (2008) propose that the Mandarin "C is nominal,"[12] since CPs can be selected by verbs just as nominals are. This allows C to select for a head-initial TP, which is an extended verbal projection, without violating FOFC.

This approach to reconciling Chinese SFPs with FOFC may work for the high, clause-typing SFP_2. However, the existence of head-final heads (SFPs) at the vP edge position, as I have proposed here, is unexpected and problematic for Biberauer et al's characterization of FOFC, which is designed specifically to hold across material in both the vP and CP domains. The existence of SFP at the vP edge has the consequence that FOFC cannot apply across the entire CP and vP phases together, at least in Chinese.

A possible solution is to adopt a characterization of FOFC that holds only within individual Spellout domains, as in Richards (2013).[13] Consider a dynamic view of phase boundaries (Bošković, 2013), where the highest head in an extended projection will

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[12] In Biberauer et al (2009), it is instead stated that Chinese SFPs are "categorically deficient."

[13] For Richards (2013), this characterization of FOFC limited to Spellout domains follows from a particular view of the linearization that allows the derivation of head-final heads in some contexts but not others. I refer the reader to Richards (2013) for details.

behave as the phase head.[14] The head SFP_1 that I propose is the highest head in the verbal extended projection, and will therefore act as the phase head of the lower phase of the clause. FOFC holds within each Spellout domain. As the lowest head in its Spellout domain, SFP_1 can be head-final without violating FOFC, even though its complement is a head-initial projection. Once a head-initial projection is built above it, though, FOFC ensures that the rest of the Spellout domain above it will stay head-initial.

(24)　**The Mandarin clausal spine (hierarchical):**

phase head

$$\ldots [_{TP} \text{ T } \ldots [_{SFP1P} \text{ SFP}_1 \quad [_{vP} v \ [_{VP} \text{ V } \ldots$$

Spellout domain 　　　 *Spellout domain*
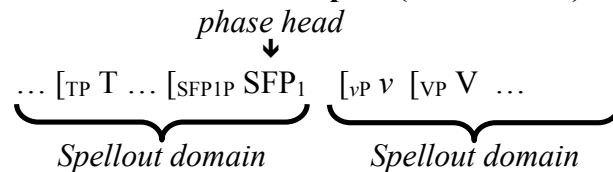
In this way, the linearization of SFP_1 can be reconciled with a version of FOFC. What's more, this Spellout-based characterization of FOFC offers an explanation for why head-final heads (SFP) can only occur at the *v*P edge or CP edge in Mandarin Chinese.

However, this proposal that FOFC only applies within individual Spellout domains has the effect of severely weakening FOFC. Much of the original motivation for FOFC stemmed from a gap in the possible word orders of heads in both the *v*P and CP domains. For example, consider the Finnish *wh*-question below, originally from Holmberg (2000). This *wh*-question allows for various word orders between the auxiliary, V, and O, which correspond to a head-initial or head-final auxiliary and a head-initial or head-final verb. Just one of the four possible orders is unavailable: the FOFC-violating V-O-Aux order.

(25)　**Word orders in Finnish *wh*-questions (Biberauer et al, 2008):**
　　a.　✓ Milloin　Jussi olisi　　　kirjoittanut romaanin?　　　　Aux-V-O
　　　　　when　　Jussi would.have　written　　novel-DEF
　　　　　'When would Jussi have written the novel?'
　　b.　✓ Milloin　Jussi olisi　　　romaanin　kirjoittanut?　　　Aux-O-V
　　　　　when　　Jussi would.have　novel-DEF　written
　　c.　✓ Milloin　Jussi romaanin　kirjoittanut olisi?　　　　　O-V-Aux
　　　　　when　　Jussi novel-DEF　written　　would.have
　　d.　* Milloin　Jussi kirjoittanut romaanin　olisi?　　　　　*V-O-Aux
　　　　　when　　Jussi written　　novel-DEF　would.have

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[14] This dynamic view of phasehood is also independently predicted by the idea that heads in an extended projection are related by head movement (Shimada, 2007), combined with the idea that phase boundaries are extended by head movement (Den Dikken, 2007).

If FOFC holds within the vP Spellout domain and separately within the CP Spellout domain, FOFC no longer explains this pattern. Richards (p.c.) suggests that this difference may lie in the morphological status of v. Richard's (2013) derivation of FOFC is based on a theory that heads are by default head-initial and become head-final only if the head is an affix which can then be adjacent to a host. If v is an affix which is linearly adjacent to a possible host V, v will necessarily stay head-initial, and therefore the effect of FOFC will apply across the entire vP and CP domains. Therefore the apparent difference between Chinese on the one hand and many other languages on the other hand may be attributed to a difference in the morphological status of v: the (arguably unpronounced) v head in Chinese is not an affix, unlike many other languages. I refer the reader to Richards (2013) for more details.

Although not explicitly designed to address FOFC, Hsieh & Sybesma (2011) similarly analyze SFPs as heads whose complements are Spellout domains.[15] For Hsieh & Sybesma, SFPs then invoke complement-to-specifier movement as a symmetry-breaking operation—following Uriagereka (1999), the Spelled-out complement will be a syntactic atom with no internal structure, and therefore will not be linearizable using Kayne's LCA without this movement of the complement. Their analysis therefore predicts head-final heads in the clausal spine—i.e. SFPs—can only occur at phase edges.

Without additional restrictions, Hsieh & Sybesma's Spellout-based analysis predicts the existence of SFPs at the vP edge as well as the CP edge. Hsieh & Sybesma discuss this prediction as a potential problem for their analysis:

> "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."

Far from being a problem, following the view that SFPs are clausal heads, this prediction made by the theory of Hsieh & Sybesma (2011) is borne out by the low class of SFPs, such as *le, éryǐ, láizhe*, etc., which I argue are in the extended vP periphery.

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[15] The details of Spellout and phasehood in Hsieh & Sybesma (2011) differ from what I presented here in section 5. Hsieh & Sybesma propose that Spellout targets the entire phase, including the phase head and its specifier, instead of the complement of the phase head as is common in phase theory. Therefore under their conception, the highest head in the complement of the SFP is a phase head, rather than the SFP itself as described here. Hsieh & Sybesma's proposal can be restated without difficulty into the terms I present here. The key is to allow the highest head within an extended projection to be the phase head, as proposed by Bošković (2013). (See also the footnote 14 above.) This allows us to keep the common conception of Spellout domains as the complement of phase heads.

6. Conclusion

Sentence-final particles (SFPs) have long been a puzzle for Chinese syntax. Previous approaches have analyzed all SFPs as heads in a head-final split CP. In this paper I propose that the low class of Mandarin SFP—SFP$_1$: sentence-final *le, éryǐ, láizhe,* etc.—occupy a position in the extended *v*P periphery. Evidence for this view comes from the semantic scope of SFP$_1$ with respect to negation and modals: rather than taking scope over all operators in TP, as would be expected if they were in the extended CP, items in SFP$_1$ take scope *under* negations and modals higher in the clause. Such evidence from semantic scope sheds light on the position of these items in the structure of the Mandarin clause, particularly as the linear position of these SFPs does very little to communicate their structural position.

The sentence-final linear position of Chinese SFPs, in contrast to the otherwise strictly head-initial clausal spine, has made them notorious as a possible counterexample to the Final-over-Final Constraint (Biberauer et al, 2008; Bailey, 2010; Paul, 2014; a.o.). Rather than view SFPs as a challenge to FOFC as a cross-linguistic universal of structure-building, I view Mandarin SFPs as an important empirical testing ground for FOFC, in light of its otherwise broad coverage. The structural distribution of Mandarin SFPs that I argue for here—with SFPs at both the *v*P and CP peripheries—can be explained by a characterization of FOFC which holds only within individual Spellout domains, as in Richards (2013). Because of FOFC, only the heads right above a Spellout domain, e.g. the phase heads, are able to be linearized on the right (be head-final) while taking a head-initial projection as their complement.

REFERENCES

BAILEY, LAURA R. 2010. Sentential word order and the syntax of question particles. In *Newcastle Working Papers in Linguistics 16*.

BIBERAUER, THERESA, ANDERS HOLMBERG, and IAN ROBERTS. 2008. Structure and linearization in disharmonic word orders. In *Proceedings of WCCFL 26*.

BIBERAUER, THERESA, GLENDA NEWTON, and MICHELLE SHEEHAN. 2009. Limiting synchronic and diachronic variation and change: The Final-over-Final Constraint. *Language and Linguistics* 10:701–743.

BOŠKOVIĆ, ŽELKO. 2013. Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry* 45.

CHAO, YUEN REN. 1968. *A Grammar of Spoken Chinese*. University of California Press.

DEN DIKKEN, MARCEL. 2007. Phase extension: Contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics* 33.

ERLEWINE, MICHAEL YOSHITAKA. 2010. Sentence-final *only* and the interpretation of focus in Mandarin Chinese. In *Proceedings of NACCL-22 & IACL-18*. URL http://naccl.osu.edu/sites/naccl.osu.edu/files/NACCL-22_2_33_erlewine.pdf .

ERLEWINE, MICHAEL YOSHITAKA. 2012. Structurally distant haplology. In *Snippets* 26. URL http://www.ledonline.it/snippets/allegati/snippets26002.pdf .

ERLEWINE, MICHAEL YOSHITAKA. To appear. Explaining leftward focus association with *even* but not *only*. In *Proceedings of Sinn und Bedeutung 18*.

ERNST, THOMAS. 2002. *The Syntax of Adjuncts*. Cambridge University Press.

GRANO, THOMAS ANGELO. 2012. Control and restructuring at the syntax-semantics interface. Doctoral Dissertation, University of Chicago.

HOLMBERG, ANDERS. 2000. Deriving OV order in Finnish. In *The Derivation of VO and OV*.

HSIEH, FENG-FAN and SYBESMA, RINT P. E. 2011. On the linearization of Chinese sentence-final particles: Max spell out and why CP moves? *Korea Journal of Chinese Language and Literature*.

HSIEH, MIAO-LING. 2001. Form and meaning: negation and question in Chinese. Doctoral Dissertation, University of Southern California.

HU, MINGYANG. 1981. 北京话的语气助词和叹词 (Mood particles and interjections in the Beijing dialect). *Zhongguo Yuwen* 5.

HUANG, CHENG-TEH JAMES. 1982. Logical Relations in Chinese and The Theory of Grammar. Doctoral Dissertation, Massachusetts Institute of Technology.

LEE, HUN-TAK THOMAS. 1986. Studies on quantification in Chinese. Doctoral Dissertation, University of California at Los Angeles.

LI, BOYA. 2006. Chinese sentence-final particles and the syntax of the periphery. Doctoral Dissertation, University of Leiden.

LIN, TZONG-HONG JONAH. 2006. Complement-to-specifier movement in Mandarin Chinese. Manuscript, National Tsing Hua University.

LIN, TZONG-HONG JONAH. 2011. Finiteness of clauses and raising of arguments in Mandarin Chinese. *Syntax* 14:48–73.

PAUL, WALTRAUD. 2014. Why particles are not particular: sentence-final particles in Chinese as heads of a split CP. *Studia Linguistica* 68.

PAUL, WALTRAUD, and JOHN WHITMAN. 2008. *Shi... de* focus clefts in Mandarin Chinese. *The Linguistic Review* 25:413–451.

RICHARDS, NORVIN WALDEMAR III. 2013. Uttering theory. Manuscript, MIT.

RIZZI, LUIGI. 1997. The fine structure of the left periphery. In *Elements of Grammar*, ed. Liliane Haegeman. Kluwer.

SHIMADA, JUNRI. 2007. Head-movement, binding theory, and phrase structure. Manuscript, MIT.

SIMPSON, ANDREW and ZOE WU. 2002. IP-raising, tone sandhi and creation of s-final particles: evidence from cyclic spell-out. *Journal of East Asian Linguistics* 11:67–99.

SOH, HOOI LING. 2005. *Wh*-in-situ in Mandarin Chinese. *Linguistic Inquiry* 36:143–155.

SOH, HOOI LING. 2009. Speaker presupposition and Mandarin Chinese sentence-final -*le*: a unified analysis of the "change of state" and the "contrary to expectation" reading. *Natural Language & Linguistic Theory* 27:623–657.

SOH, HOOI LING, and MEIJIA GAO. 2006. Perfective aspect and transition in Mandarin Chinese: an analysis of double -*le* sentences. In *Proceedings of the 2004 Texas Linguistics Society conference*.

TANCREDI, CHRIS. 1990. Not only *even*, but even *only*. Manuscript, MIT.

TANG, SZE-WING. 1998. Parametrization of features in syntax. Doctoral Dissertation, University of California, Irvine.

TANG, TING-CHI. 1988. 普遍語法與漢英對比分析 (Universal Grammar and a comparative analysis of Chinese and English). In 漢語詞法句法論集 *(Studies on Chinese morphology and syntax)*, volume 2. Taipei: Student Book Company.

TSAI, WEI-TIAN DYLAN. 2012. On the topography of Chinese modals. Presented at Syntactic Cartography: where do we go from here?, University of Geneva.

URIAGEREKA, JUAN. 1999. Multiple Spell-Out. In *Working Minimalism*, eds. S.D. Epstein and N. Hornstein, 251-282. Cambridge, MA, MIT Press.

YEH, LING-HSIA. 1992. On sentential negation in Chinese. Manuscript, University of Massachusetts at Amherst.

ZHU, DEXI. 1982. 語法講義 *(On Grammar)*.

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