

Sentence-Final Particles in Chinese

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Summary

Chinese has a rich system of Sentence-Final Particles (henceforth SFP). Traditional grammar and descriptive linguistic studies attempt to capture the precise semantic interpretation and the discourse function of each particle. Much work related to this aspect tries to find out what the core semantic interpretation of a given SFP is, how the diverse interpretations of a given SFP are developed from its core interpretation, and in what context the use of a given SFP is licit. Linguists from different disciplines have made important observations and offered various explanations. On the other hand, diachronic studies trace the origin and the evolution of each SFP, which helps understand the core semantics of SFPs in modern Chinese. Studies on different Chinese dialects also help the understanding of the meaning and the function of SFPs from a comparative perspective. Under the generative framework, SFPs are analyzed as complementizers, which are located in the peripheral domain. Both traditional grammarians and generative syntacticians are interested in patterns like the rigid order that necessarily shows whenever SFPs co-occur. They attempt to establish the hierarchical order of SFPs and identify the general principle that regulates such an order. Recent studies show that such an order is regulated by a discourse constraint related to subjectivity, according to which the higher a functional projection is located, the more direct it is for such a projection to be linked to the speaker's attitude, the more subjective the interpretation of such a projection becomes, and the less likely it is for such a projection to be embedded. This constraint offers an explanation to the question of why only some SFPs can appear in embedded clauses, whereas the others demonstrate root properties. Syntacticians are also interested in the question of how to derive the final order of SFPs. Two analyses are available: disjunction analysis and complement-to-specifier raising analysis. A more recent finding is that under the minimalist framework, each SFP heads a phase and bears an EPP feature. Complement-to-specifier raising is required as a last resort to satisfy the EPP. The complement of an SFP is moved to the phase edge so as to postpone the transfer of the phrases that are embedded within the complement, which allows these phrases to be extracted later.

Keywords: Sentence-Final Particle, Left-periphery, Split-CP, Phase, Root phenomena, Chinese

1. Introduction

Chinese has a rich system of Sentence-Final Particles (henceforth SFP). Much descriptive work has been done since early grammar books (cf. Chao 1968, Li & Thompson 1981, Zhu 1982, a.o.). Over the last fifty years, scholars attempt to describe the precise interpretation and the discourse function for each SFP, as well as the contexts in which the use of each SFP is licit. Diachronic studies help trace the origin and the evolution of SFPs. Studies on different Chinese dialects also help understand the meaning and the function of SFPs in Mandarin from a comparative perspective. Although much progress has been made, there are still many SFPs whose core semantics and discourse functions are not explicit. Thus, future work from the descriptive perspectives is still needed. On the syntactic side, scholars are interested in questions like how to analyze SFPs, which are treated as functional heads in the generative tradition. Concretely, they are analyzed as complementizers, which head phrases equivalent to CP. On the other hand, Zhu (1982) observes that several SFPs could co-occur but required a fixed rigid order. Inspired by the split-CP hypothesis (cf. Rizzi 1997), syntacticians attempt to establish a map as detailed as possible to determine the hierarchical order of SFPs and also try

to find out the general principle that regulates such an order (see Li 2006; Paul 2014, 2015; Pan & Paul 2016; Paul & Pan 2017; Pan 2015, 2019a; Tang 2015, 2019, 2020, a.o.)

This article reviews some of these aspects of the researches on SFPs in Mandarin Chinese. Section 2 addresses questions related to the (non-)optionality of SFPs; section 3 discusses the diachronic studies of some SFPs; section 4 presents the hierarchical order of SFPs; section 5 discusses root phenomena of some SFPs; section 6 addresses the head-finality of SFPs; section 7 presents the latest analysis of SFPs under the Minimalist Program; section 8 concludes the paper and section 9 provides further reading references.

2. Non-optionality

Although the presence or the absence of an SFP does not always affect the grammaticality of a given sentence, the presence of an SFP is not optional. This is because each particle conveys a specific meaning or has a specific discourse function; in other words, a specific semantic interpretation or a specific discourse function can only be obtained when the correct particle is used. In this sense, the presence of a particle is obligatory for the specific meaning associated with this SFP to be expressed. For instance, without any SFP, (1a) only states a fact. The particle *ma* (吗) transforms (1a) into a *yes-no* question, as shown in (1b). The confirmation question particle *ba_{conf}* (吧) in (1c) gives rise to a tag-question reading. The SFP *ne_{att}* (呢) in (1d) serves to draw the attention of the co-speaker to the fact stated in the sentence, which has a function similar to “*hey, look, listen*” in English (see Jiang 1986, Jin 1996, Chu 2002, Qi 2002, Wu 2005, Li 2006, Ren 2017, a.o. for more detailed discussions on *ne*). The SFP *ba_{att}* (吧) in (1e) expresses the speaker’s uncertainty about the fact stated in the sentence, which is translated as “*probably*” in English. The interjective particles such as *a* (啊) and *la* (啦) in (1f) express the mood of the speaker, which can be surprising, exciting, etc. (also see Chu 2002). SFPs such as *ma_{att}* (嘛) in (1g) and *bei* (呗) in (1h) both emphasize the obviousness of the fact that the sentence states, but with different implications. See Cui (2019, 2020) for detailed discussions on the discourse function of *ma_{att}* (嘛).

(1) a. 外面在下雪。

Wàimian zài xià xuě.
outside PROG fall snow

‘It is snowing outside.’ (The statement of the fact)

b. 外面在下雪吗?

Wàimian zài xià xuě ma?
outside PROG fall snow Q_{yes-no}

‘Is it snowing outside?’

c. 外面在下雪吧?

Wàimian zài xià xuě ba?
outside PROG fall snow BA_{conf}

‘It is snowing outside, isn’t it?’

d. 外面在下雪呢!

Wàimian zài xià xuě ne!
outside PROG fall snow NE_{att}

‘Hey/Look, it is snowing outside!’ (attention drawing)

e. 外面在下雪吧!

Wàimian zài xià xuě ba!
outside PROG fall snow BA_{att}

‘Probably, it is snowing outside, (which is why I feel so cold)!’

f. 外面在下雪{啊/啦}!

Wàimian zài xià xuě {a / la}!
outside PROG fall snow A / LA

‘Oh/Wow, it is snowing outside!’

g. 外面在下雪嘛!

Wàimian zài xià xuě ma!
outside PROG fall snow MA_{att}

‘Obviously, it is snowing outside! (So, you’d better keep warm!)’

h. 外面在下雪呗!

Wàimian zài xià xuě bei!
outside PROG fall snow BEI

‘Obviously, it is snowing outside! (Why is it so difficult for you to see this?!)’

The fact that a rising intonation applied to a declarative sentence sometimes gives rise to a *yes-no* question reading leads some scholars to suggest that the presence of the *yes-no* question particle *ma* is optional in a given sentence. Similarly, in English, subject-auxiliary inversion is the standard way to form a *yes-no* question, but a rising intonation can also be used to indicate a *yes-no* question. However, rising intonation and subject-auxiliary inversion are not interchangeable (see Gunlogson 2001 for detailed discussions on English *yes-no* questions; see Pan & Paul 2016 for the discussion on Chinese *ma*). For instance, Negative Polarity Items (NPI) can be licensed in a *yes-no* question formed by subject-auxiliary inversion only, as in (2). Importantly, (2a) shows that rising intonation cannot license an NPI, such as *anything*.

(2) a. *You ate anything ↑?

b. Did you eat anything?

3. Diachronic studies

Although the semantic interpretation is clear for particles such as *ma*, it is not the case for all the SFPs. Linguists attempt to give detailed descriptions of the semantics and the discourse function of each SFP. In this respect, diachronic researches help us trace the origin and the evolution of SFPs, to better understand their discourse functions in modern Chinese. In this section, we review the diachronic study of the two most important SFPs: *ma* and *ne*.

3.1 *ma* (吗)

One of the most studied Chinese SFPs is the *yes-no* particle *ma*, which turns a declarative sentence into a *yes-no* question. It is generally agreed that *ma* comes from negative words such as *wu*. A general grammaticalization path for the SFP *ma* is as follows.

wu (无) (Tang dynasty) →

mo (磨) / *mo* (摩) (late Tang dynasty and early Song Dynasty) →

me (麽) (Song dynasty) →

ma (吗) (Qing dynasty).

According to Yang (2003), *wu* (无) was used as a negative word, but also participated in the form [VP + NEG] to raise a *yes-no* question, as shown in (3-4).¹

(3) 秦川得及此间无?

Qínchuān dé jí cǐ jiān wú?
Qinchuan can match this place NEG
'Can Qinchuan be as good as this place?'
(Poem by *Bai Li* (701-762 A.D.), Tang Dynasty)

(4) 肯访浣花老翁无?

Kěn fǎng huàn huā lǎo wēng wú?
willing visit Huanhualao weng NEG
'Are you willing to visit Huanhualao weng?''²
(Poem by *Fu Du* (721-770 A.D.), Tang Dynasty)

The negative *wu* (无) or *mo* (磨/摩) was later written as *me* (麽) in Song Dynasty, as in (5-6).

(5) 先生笑问有酒麽?

Xiānsheng xiào wèn yǒu jiǔ me?
gentleman smile ask have liquor ME
'The gentleman asks with smile: "Is there any liquor?"'
(Poem by *Wanli Yang* (1127-1206 A.D.), Song Dynasty)

(6) 问香醪饮麽?

Wèn xiāng lǎo yǐn me?
ask liquor drink ME
'Do you drink some liquor?'
(Poem by *Fu Mi* (1051-1107 A.D.), Song Dynasty)

Finally, the negative *wu* (无) or *mo* (磨/摩) has been written as *ma* (吗) since Qing Dynasty until nowadays, as in (7).

(7) 这是爆竹吗?

Zhè shì bàozhú ma?
this is fireworks *Q_{yes-no}*
'Are these fireworks?'
(*Dream of the Red Chamber*, by *Xueqin Cao* (1715-1763 A.D.), Qing Dynasty)

In modern Chinese, it is sometimes written as *me* (麽/么), as shown in (8).

¹ The major dynasties are listed here: Spring and Autumn (770 B.C. – 476 B.C.); Qin dynasty (221 B.C. – 207 B.C.); Han dynasty (202 B.C. – 220 A.D.); Tang dynasty (618 A.D. – 907 A.D.); Five dynasties and ten kingdoms period (907 A.D. – 979 A.D.); Song dynasty (960 A.D. – 1279 A.D.); Northern Song dynasty (960 A.D. – 1127 A.D.); Southern Song dynasty (1127 A.D. – 1279 A.D.); Jin (1115 A.D. – 1234 A.D.); Yuan dynasty (1271 A.D. – 1368 A.D.); Ming dynasty (1368 A.D. – 1644 A.D.); Qing dynasty (1636 A.D. – 1912 A.D.).

² *Huanhualao weng* is another name of the author *Fu Du*.

- (8) 你今天回家 {吗/么}?
 Nǐ jīntiān huí jiā {ma / me}?
 2SG today return home MA / ME
 ‘Will you go back home today?’

Similar cases are found with modern Chinese. For example, in (9), *bù* (不) is a common negative adverb located in a preverbal and post-subject position.

- (9) 我不想学法语。
 Wǒ bù xiǎng xué fǎyǔ.
 1SG NEG want learn French
 ‘I don’t want to learn French.’
 (modern Chinese)

Bù (不) can also be used as an SFP to transform a declarative sentence into a *yes-no* question, as in (10).

- (10) 你想一起去不?
 Nǐ xiǎng yīqǐ qù bu?
 2SG want together go NEG
 ‘Do you want to go together?’
 (modern Chinese)

Such phenomena are by no means isolated in Chinese. In fact, in a very early period, the negative word *bù* (不) has already been used as an SFP to indicate a *yes-no* question, as in (11).

- (11) 子去寡人之楚，亦思寡人不?
 Zǐ qù guǎrén zhī chǔ, yì sī guǎrén bu?
 2SG leave 1SG go.to Chu still miss 1SG NEG
 ‘Will you still miss me after you go to Chu?’
 (*Shi ji*, by *Qian Sima* (145-??86B.C.), Qin Dynasty)

Taken by many to be convincing that the *yes-no* question particle *ma* and its variant *me* are related to the negative words in ancient Chinese. The reader can also refer to Ota (2003[1958]), Wang (1980), Zhong (1997) and Yang (2003) for more detailed discussions.

3.2 *Ne* (呢)

Generally, three *ne* have been identified in modern Chinese: the first indicates the progressive aspect, glossed as “NE_{prog}” (cf. 12), the second can be used in interrogative sentences, glossed as “NE_{int}” (cf. 13), and the third is used in exclamative sentences to express the speaker’s subjective opinion and attitude, glossed as “NE_{att}” (cf. 14).³

³ It is still controversial whether all these three *ne* can really be distinguished one from the other. Especially, it has been recognized that *ne_{prog}* is only compatible with an interrogative sentence but it does not have any inherent interrogative force, which is different from a real interrogative particle such as the *yes-no* question particle *ma* (see Li 2006, Pan & Paul 2016).

(12) 妹妹睡觉呢。

Meimei shuì jiào ne.
sister sleep sleep NE_{prog}
'My sister is sleeping.'

(13) 我们都去过巴黎了，你呢？

Wǒmen dōu qù-guò Bālí le, nǐ ne?
we all go-EXP Paris LE you NE_{int}
'We have all been in Paris before, what about you?'

(14) 这里有好多船呢！

Zhèlǐ yǒu hǎoduō chuán ne!
here have many boat NE_{att}
'There are many boats here!'

Historically, the grammaticalization path for the interrogative *ne*_{int} is clear:

na (那) / *ni* (讎) (Tang dynasty, Five dynasties period) →

na (那) (Song dynasty, Jin dynasty, Yuan dynasty) →

na (那) / *ne* (呢) / *li* (哩) (after Jin and Yuan dynasties) →

ne (呢) / *li* (哩) (after Ming dynasty) →

na (哪) / *ne* (呢) (after Qing dynasty) →

ne (呢) (modern Chinese).

Examples in (15-16) are from *Zutang ji* during the Five Dynasties period, and *ni* (讎/尼) is used.

(15) 夹山曰：只今讎？对云：非今。

Jiāshān yuē: zhǐ jīn nǐ? Duì yún: fēi jīn.
Jiashan say only now NI respond say not now
'Jiashan says: "What if it is only for now?" (Someone) answers: "There is no now."
(祖堂集 *Zutang ji*, Five Dynasties period)

(16) 师曰：那个尼？对曰：在。

Shī yuē: nà ge nǐ? Duì yuē: zài.
master say that CL NI respond say exist
'The master says: "What about that one?" (Someone) answers: "It is there."
(祖堂集 *Zutang ji*, Five Dynasties period)

Example (17) is from Song dynasty and *na* (那) is used.

(17) 尔不肯老僧那？

Ěr bù kěn lǎosēng nà?
2SG NEG agree old.monk NA
'Don't you agree with me (the old monk)?'
(景德传灯录 *Jingde chuandeng lu*, Song dynasty)

During and after Yuan dynasty, *li* (哩) is used, as in (18-19).

(18) 你看，他穿着什么衣服哩？
Nǐ kàn, tā chuān-zhe shénme yīfu li?
2SG look 3SG wear-DUR what clothes LI
'Look, what clothes is he wearing?'
(墙头马上 *Qiangtou mashang*, Yuan dynasty)

(19) 你还不曾去哩？
Nǐ hái bù céng qù li?
2SG yet NEG ever go LI
'Haven't you been there yet?'
(谢天香 *Xie Tianxiang*, Yuan dynasty)

The grammaticalization path for the exclamative *ne*_{att} is as follows:

li (裹) / *li* (里) (Tang dynasty, Five dynasties period) →
li (哩) (Song, Yuan and Ming dynasties) →
ne (呢) / *li* (哩) (Qing dynasty) →
ne (呢) (modern Chinese).

(20) 幸有光严童子里。
Xìng yǒu guāngyántóngzǐ li.
fortunately have Guangyantongzi LI
'Fortunately, Guangyantongzi is here.'
(维摩诘经 *Vimalakirti Sutra*, translated version in Tang dynasty)

Importantly, since Yuan dynasty, *li* (哩) has been used both as an interrogative particle and as an interjective particle. Here are some examples.

(21) 你吃什么哩？我吃烧饼哩。
Nǐ chī shénme li? Wǒ chī shāobing li.
2SG eat what LI 1SG eat pancake LI
'What are you eating right now? Look, I am eating pancakes.'
(潇湘雨 *Xiaoxiang yu*, Yuan dynasty)

(22) 他还不认得我哩。
Tā hái bù rèn de wǒ li.
3SG yet NEG know 1SG LI
'Look, he hasn't known me yet.'
(陈州棗米 *Chenzhou tiaomi*, Yuan dynasty)

(23) 如今不比当初，忙不得哩。
Rújīn bù bǐ dāngchū, máng bù dé li.
nowadays NEG compare past busy NEG DE LI
'Nowadays, it is not as good (busy) as the past.'
(警世通言 *Jingshi tongyan*, Ming dynasty)

Ne (呢) appears since Qing dynasty. See Ota (2003[1958]), Wang (1980), Cao (1986), Jiang (1986), Sun (1992), Qi (2002a, b, c) and Jiang (2005) for detailed discussions and controversial issues concerning the origin and the evolution of the two *ne* particles.

4. Hierarchical order and co-occurrence

It has been observed that SFPs in Chinese can co-occur. Zhu (1982) identifies three classes of SFPs occurring with a fixed order; more recent work on the occurrence of SFPs with evidence from Chinese dialects can be found in Wang & Bi (2018). Under the generative framework, Lee (1986) analyzes the *yes-no* question particle *ma* as a complementizer (i.e., C head), which takes a TP as its complement. Based on the split CP hypothesis (cf. Rizzi 1997), Paul (2014, 2015) extends this analysis to all of the SFPs in Chinese and maps the SFPs from the three classes identified by Zhu (1982) onto three functional projections: low C < medium C (Force) < high C (Attitude). Pan (2015, 2019a, b) proposes a more fine-grained architecture of the entire peripheral domain in Chinese, containing not only SFPs but also other peripheral functional projections.

(24) (TP) < **S.AspP** (sentential aspects particles) < **OnlyP** (exclusive focus particles) < **iForceP** (illocutionary force) < **SQP** (special questions) < **AttP1** < **AttP2** (discourse particles related to the speaker's attitude)

Overt particles occupy four layers: S.AspP, *OnlyP*, *iForceP* and *AttPs*. Table 1 is extracted from Pan (2019a), which gives an overview of the distribution of SFPs in Chinese.

Projections		Particles/operators	Discourse function	Embedded?
S.AspP (sentential aspect)		来着 <i>laizhe</i> _{Asp}	Recent past	Yes
		了 <i>le</i>	State changing	Yes
		呢 <i>ne</i> _{prog}	Progressive aspect	Yes
OnlyP		而已 <i>eryi</i>	Sentential exclusive focus	Yes
iForceP (illocutionary force)		吗 <i>ma</i>	Standard <i>yes-no</i> question	No
		吧 <i>ba</i> _{imp}	Weak imperative	No
		吧 <i>ba</i> _{conf}	Confirmation <i>yes-no</i> question	No
AttitudeP (speaker's attitude)	low layer	呢 <i>ne</i> _{att}	Speaker's attitude, subjective opinion, etc.	No
	high layer	啊 <i>a</i> , 哎 <i>ei</i> , 呗 <i>bei</i> , 啦 <i>la</i> , 嘞 <i>lei</i> , 呐 <i>na</i> , 呀 <i>ya</i> , 嘛 <i>ma</i> , 来着 <i>laizhe</i> _{att} , 吧 <i>ba</i> _{att} , etc.		

Table 1

As emphasized above, SFPs from different projections can co-occur but only with the rigid order, as indicated in (24). In (25), *ne*_{prog} is a sentential progressive aspect particle located at S.AspP and *ma* is a *yes-no* question particle located at *iForceP*. The fact that the entire sentence is interpreted as a root *yes-no* question suggests that *ma* takes a wide scope, which is coherent with the fact that *ma* is located in the highest position in this sentence.

(25) S.AspP-*ne*_{prog} < iForceP-*ma*

你在跟他们喝茶呢吗?

[iForceP [S.AspP [TP Nǐ zài gēn tāmen hē chá] ne] ma]?

‘Are you drinking tea with them?’

In (26), the weak imperative particle *ba*_{imp} is located at iForceP and the interjective particle *a* is located at AttP. AttP-*a* takes scope over iForceP-*ba*_{imp}.

(26) iForceP-*ba*_{imp} < AttP-*a*

你把它吃了吧啊!

[AttP [iForceP [TP Nǐ bǎ tā chī-le] ba] a]!

‘Well, please eat it!’

In (27), both *ne*_{att} and *ma*_{att} are interjective particles conveying the speaker’s subjective opinion and attitude; they occupy two different layers of AttP. The particle *ne*_{att} is used to draw the attention of the co-speaker. The particle *ma*_{att} is syntactically higher than *ne*_{att} and has a wide scope and *ma*_{att} gives rise to an implication “Please be patient!”, as indicated in the translation of the sentence. The reader can refer to Cui (2019, 2020) for the discussion on the discourse function of *ma*_{att} in modern Chinese.

(27) AttP1-*ne*_{att} < AttP2-*ma*_{att}

我这还没说完呢嘛!

[AttP2 [AttP1 [TP Wǒ zhè hái méi shuō wán] ne] ma]!

‘Oh, look, I haven’t finished speaking yet! (Please be patient! / Please give me more time!’

Similarly, in (28), the particle *ba*_{att} is interpreted as “probably” and it takes scope over the entire sentence.

(28) AttP1-*ne*_{att} < AttP2-*ba*_{att}

他又躲着你呢吧!

[AttP2 [AttP1 [TP Tā yòu duǒ-zhe nǐ] ne] ba]!

‘Probably, look, he again hides himself from you!’

(29) demonstrates a case where three SFPs cooccur in the same sentence. The sentential aspect SFP *le* takes a narrow scope, the exclusive focus SFP *éryǐ* which is interpreted as “it is just the case that...” takes an intermediate scope and the attitude SFP *ba*_{att} takes the widest scope.

(29) S.AspP-*le* < OnlyP-*éryǐ* < AttP-*ba*_{att}

她只不过辞职了而已吧!

[AttP [OnlyP [S.AspP [TP Tā zhǐ-bù-guò cí zhí] le] éryǐ] ba]!

‘Probably, it is just the case that she resigned! (Nothing serious!’

(31) a. 我王者也。

[FiniteP [TP Wǒ wáng-zhě] yě]
1SG king YE
'I am the king.'

b. 我王者也乎?

[iForceP [FiniteP [TP Wǒ wáng-zhě] yě] hū]?
1SG king YE HU
'I am the king?'

c. 我王者也乎?!

[SQP ¬ [iForceP [FiniteP [TP Wǒ wáng-zhě] yě] hū]?!
1SG king YE HU
'Am I the king?!' → 'I am not the king.'

d. 我王者也乎哉?!⁴

[AttP [SQP ¬ [iForceP [FiniteP [TP Wǒ wáng-zhě] yě] hū]] zāi]?!
1SG king YE HU ZAI
'Oh, how come I am the king!'
→ 'I am absolutely not the king!'
(国语 *Guoyu*, Spring and Autumn period)

(32) is another example with the same order: TP < FiniteP (*yě*) < iForceP (*hū*) < SQP (¬) < AttP (*zāi*).

(32) 独吾君也乎哉?!

[AttP [SQP ¬ [iForceP [FiniteP [TP Dú wú jūn] yě] hū]] zāi]?!
only 1SG king YE HU ZAI
'Oh, how come (the king) is only my king?!'
→ '(The king) is definitely not the king only for me!'
(晏子春秋 *Yanzi chunqiu*, Spring and Autumn period)

A partial hierarchy can be proposed for old Chinese at this stage. More fine-grained analyses of the entire array of SFPs in old Chinese is still called for.

(33) ... (TP) < FiniteP < iForceP < SQP < AttP

5. Embeddability

A very important question is what factors determine the rigid syntactic hierarchical order of functional projections in the left-periphery in Chinese. Pan (2015, 2019a) proposes that this order is correlated with a discourse constraint, which is called the "Subjectivity Scale Constraint".

(34) Subjectivity Scale Constraint

The higher a functional projection is located, the more direct it is for such a projection to be linked to the speaker's opinion, the more subjective the interpretation of such a projection becomes, the less likely it is for such a projection to be embedded.

⁴ Also see Djamouri & Paul (2019) for a different analysis based on Paul's (2014, 2015) system.

This constraint provides us with a possible way to study the correlation between syntax and discourse. Higher particles are directly related to the subjective opinion and attitude of the speaker, and they can only be used in direct speech, which is why they show root properties. By contrast, lower particles are related to the sentence subject and they can be used in embedded clauses and thus can be used in indirect speech. For instance, (35) shows that when the final particle *le* takes scope over the negative predicate *bù xué gāngqín* ‘does not learn playing piano’, an implication such that “Zhangsan did learn playing piano before” is available. The English translation of the pattern “NEG < *le*” is “no longer/no more”.

- (35) a. 张三不学钢琴。
 Zhāngsān bù xué gāngqín.
 Zhangsan NEG study piano
 ‘Zhangsan does not learn playing piano.’
- b. 张三不学钢琴了。
 Zhāngsān bù xué gāngqín le.
 Zhangsan NEG study piano LE
 ‘Zhangsan no longer learns playing piano.’
 → ‘Zhangsan did learn playing piano before.’

Let us examine (36). The final particle *le* can either be parsed with the embedded predicate, as in (36a), or with the matrix predicate, as in (36b). In the former case, the *no-longer* reading is only available with the embedded predicate *learns playing piano* and in the latter case, such a reading is only available with the matrix predicate *believe*.

- (36) a. 李四不相信张三不学钢琴了。
 Lǐsì bù xiāngxìn [Zhāngsān bù xué gāngqín le].
 Lisi NEG believe Zhangsan NEG study piano LE
 ‘Lisi does not believe that [Zhangsan no longer learns playing piano].’
- b. 李四不相信张三不学钢琴了。
 Lǐsì bù xiāngxìn [Zhāngsān bù xué gāngqín] le.
 Lisi NEG believe Zhangsan NEG study piano LE
 ‘Lisi no longer believes that [Zhangsan does not learn playing piano].’
 → ‘Lisi did believe before [that Zhangsan does not learn playing piano].’

Illocutionary force particles, such as the *yes-no* question particle *ma* and the imperative particle *ba_{imp}* and the confirmation question particle *ba_{conf}*, are generally excluded from embedded clauses. Here is an example with *ma*.

- (37) *明天医院开门吗很重要。
 *[_{iForceP} [TP Míngtiān yīyuàn kāi mén] [_{iForce°} ma]] hěn zhòngyào.
 tomorrow hospital open door Q_{yes-no} very important
 Intended: (‘Whether the hospital will be open tomorrow is very important.’)

Attitude particles, such as *ne_{att}*, which draws the attention of the co-speaker, are also excluded from embedded clauses.

(38) a. 张三能跑一个小时呢!

[AttP [TP Zhāngsān néng pǎo yī-ge xiǎoshí][Att° ne]]
 Zhangsan can run one-CL hour NE_{att}
 ‘Look, Zhangsan can run for an hour!’

b. *张三能跑一个小时呢的说法是真的!

*[AttP [TP Zhāngsān néng pǎo yī-ge xiǎoshí][Att° ne]]
 Zhangsan can run one-CL hour NE_{att}
 de shuōfǎ shì zhēnde.
 C claim be true
 (*‘The claim that [look, Zhangsan can run for an hour is true].’)

Recall that two *láizhe* have been identified: the lower one located at S.AspP, which is related to the sentential aspect, and the higher one located at AttP, which is related to the speaker’s opinion and attitude. (39) shows that the lower aspectual *láizhe*_{Asp} can be embedded, and (40) shows that the higher attitude *láizhe*_{att} cannot be embedded.

(39) a. 那两个人刚才还在这儿说话来着。

[S.AspP [TP Nà liǎng-ge rén gāngcái hái zài zhèr shuō huà] [S.Asp° láizhe]]
 that two-CL people just.now still at here speak words LAIZHE_{Asp}
 ‘The two guys were talking here just now.’

b. 刚才还在这儿说话来着的那俩人突然不见了。

[DP [CP [S.AspP [TP Gāngcái hái zài zhèr shuō huà] [S.Asp° láizhe]]
 just.now still at here speak words LAIZHE_{Asp}
 [C° de]] nà liǎ rén] tūrán bù-jiàn-le.
 C that two people suddenly NEG-see-PERF
 ‘The two guys who were talking here just now suddenly disappeared.’

(40) a. 他们俩什么时候结婚来着?

[AttP [iForceP Op-wh [TP Tāmen liǎ shénme shíhou jié hūn]] [Att° láizhe]]?
 3PL two what time join marriage LAIZHE_{att}
 ‘By the way, when will they get married?’

b. *他们俩什么时候结婚来着的问题并不清楚。

*[AttP [iForceP Q-wh [TP Tāmen liǎ shénme shíhou
 3PL two what time
 jié hūn]] [Att° láizhe]] de wèntí bìng bù qīngchǔ.
 join marriage LAIZHE_{att} C question BING NEG clear
 (‘The question [(‘by the way,) when they will get married] is not really clear.’)

6. Head-Finality

Under the view of the existence of a head parameter, initial heads and final heads co-exist. An initial head takes its complement on the right side, whereas a final head takes its complement on the left side. Languages like Japanese are consistent head-final languages. Chinese has both a head-initial order and a head-final order: VP and TP have initial heads, whereas NP and CP headed by the complementizer *de* have a final order. In (41), the matrix T takes the VP as its complement on the right side; *V-know* takes the complex NP as its complement on the right

side. By contrast, the N head *fact* takes its complement clause CP headed by *de* on the left side and the complementizer *de* takes its complement TP also on the left side.

(41) 张三知道你要来上海工作的事儿。

[_{TP} Zhāngsān [_T T [_{VP} [_V^o zhīdào] [_{NP} [_{CP} [_{TP} nǐ yào
Zhangsan know 2SG will
lái Shànghǎi gōngzuò][_C^o de]][_N^o shir]]]]].
come Shanghai work C thing
'Zhangsan knows the fact that you will come to Shanghai for working.'

Under the split-CP hypothesis, some peripheral projections, such as TopicP has an initial order, whereas the others, such as those headed by SFPs, have a final order. Adopting the head parameter, the final order is base-generated. Another possible view is that the final order is derived. This section discusses several existing approaches to derive the final order of SFPs.

6.1 Disjunction-based analyses

Diachronically, the *yes-no* question particle *ma* comes from the negative word *wu* in old Chinese. This leads some scholars to analyze the *yes-no* question particle as a disjunctive operator, which is the equivalent of “*or not*” in English (see Bailey 2012, Tang 2015, a.o.). The disjunctive head (i.e., *or-not*) takes two identical TP in the specifier position and in the complement position respectively. Then, the lower TP (in the complement position) is deleted, which gives rise to the apparent final position of the SFP.

(42) [_{DisjP} TP [_{Disj} Disj⁰-*ma* $\overline{\text{TP}}$]] (deletion)

It is somehow reasonable to treat the *yes-no* question particle *ma* as a disjunctive head based on the semantic consideration. However, it is rather difficult to uniformly treat all of the SFPs, which bear different discourse functions, as disjunctive heads. For instance, an interjective particle, such as *a*, *bei* or *la*, cannot be analyzed as a disjunctive head. Pan & Paul (2016) also point out that the real disjunctive word *háishì* in Chinese, which can only be used in disjunctive questions, does not exhibit syntactic properties of the *yes-no* question particle *ma*. Namely, *háishì* cannot stand in the sentence-final position. In (43), the second conjunct TP in a question with *háishì* ‘or’ cannot be deleted.

(43) *你来巴黎还是 [你不来巴黎]?

*Nǐ lái Bālí háishì [nǐ bù lái Bālí] ?
2SG come Paris or 2SG NEG come Paris
(intended meaning) (‘Will you come to Paris or not (come to Paris)?’)

6.2 Comp-to-Spec raising analyses

Another possibility to derive an apparent final order of SFPs is to raise the complement TP to the specifier of the C that hosts an SFP (cf. Tang 1998, Sybesma 1999, Julien 2002, Simpson & Wu 2002, Takita 2009, Hsieh & Sybesma 2011, Pan *to appear*, a.o.).

(44) [_{CP} TP [_C C⁰-SFP $\overline{\text{TP}}$]] (raising)
↑ _____|

The above scholars generally agree with the idea of complement-to-specifier raising but their analyses differ in the motivation for such a raising. For instance, Tang’s (1998) analysis is based on the Linear Correspondence Axiom (LCA) (cf. Kayne 1994). (45) is a simplified

version of LCA.

(45) Linear Correspondence Axiom (LCA)

Where X, Y, and Z are terminal elements (lexical items), X precedes Y if and only if X asymmetrically c-commands Y, or X is dominated by Z, and Z asymmetrically c-commands Y.

After an SFP merges with its complement TP, the TP undergoes movement to a position asymmetrically c-commanding the SFP. As a result, the TP is pronounced preceding the SFP, which gives rise to the final order of SFP.

(46) is an example involving three SFPs. To derive the final order, we need to apply Kayne’s “roll-up” movement, as demonstrated in (47).

(46) S.AspP-*le* < *OnlyP-éryi* < AttP-*ba_{att}*

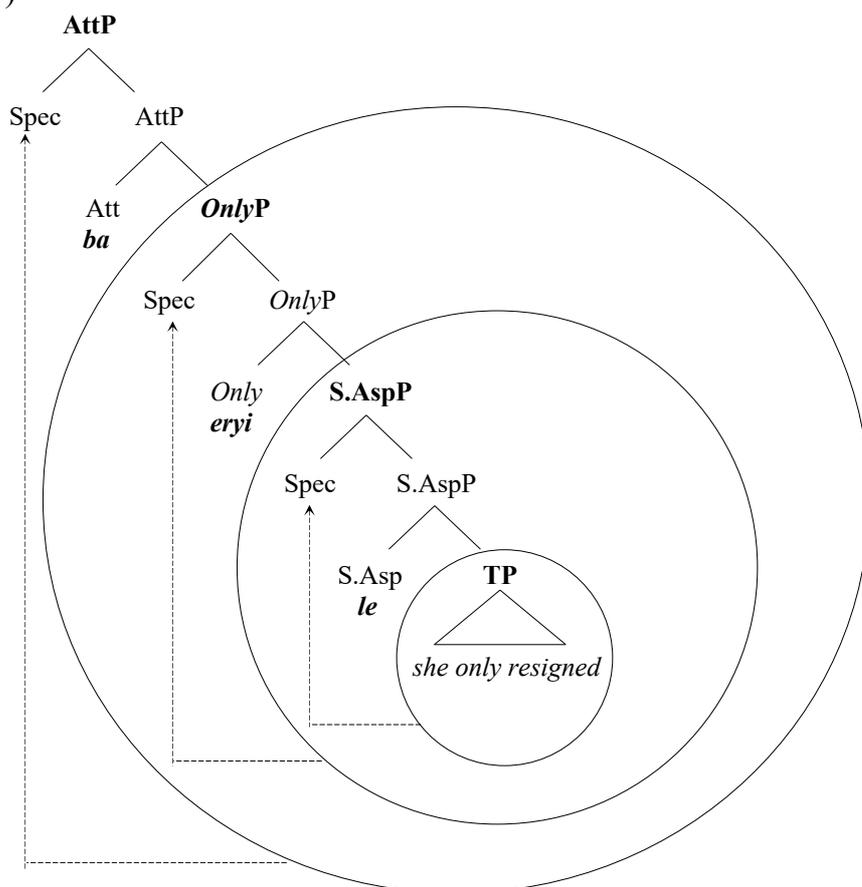
她只不过辞职了而已吧!

[AttP [*OnlyP* [*S.AspP* [*TP* Tā zhǐ-bù-guò cí zhí] *le*] *éryi*] *ba*!]

3SG only-NEG-pass resign post LE ERYI BA_{att}

‘Probably, it is just the case that she only resigned! (Nothing serious!)’

(47)



First, the TP-*she only resigned* is moved from the complement of the S.Asp head *le* to the Spec of S.AspP. Since TP asymmetrically c-commands *le*, TP is pronounced preceding *le*, which gives rise to the order: TP < *le*. Second, the S.AspP is moved from the complement of the *OnlyP* head *éryi* to the Spec of *OnlyP* to derive the order TP < *le* < *éryi*. Third, the *OnlyP* is moved from the complement of the Att head *ba_{att}* to the Spec of AttP to derive the order TP < *le* < *éryi*

< *ba*_{att}.

Pan (2019a) discusses the advantages of the comp-to-spec raising analysis over disjunction analysis. Here is one advantage. Huang (1982) shows that the *yes-no* question particle *ma* triggers the existential closure at I'/T' level in Chinese. In (48), the *wh*-object gets an existential reading in a *yes-no* question.

- (48) 你吃了什么吗?
 [CP [TP Nǐ [T' ∃x chī-le shénme_x]] ma]?
 2SG eat-PERF what Q_{yes-no}
 ‘Did you eat anything at school?’

This phenomenon cannot be captured under the disjunction analysis of *ma*. The derivation goes as follows.

Step 1: The disjunctive head *ma* takes the TP1 as its complement. The particle *ma* triggers the ∃ quantifier at the level of T' and ∃ c-commands the object *wh*-word *shenme* ‘what’ so that the latter obtains an ∃-reading “*something/anything*”.

- (49) [Disj⁰ Disj⁰-*ma* [TP1 nǐ [T' ∃x chī-le shénme_x]]]

Step 2: The identical TP2 is merged at the Spec of the DisjP. Since *ma* does not c-command the TP2 located at the Spec of DisjP, *ma* cannot trigger the ∃ quantifier in TP2. Therefore, the object *shenme* ‘what’ in TP2 cannot get an ∃-reading.

- (50) [DisjP [TP2 nǐ [T' chī-le shénme]] [Disj⁰ Disj⁰-*ma* [TP1 nǐ [T' ∃x chī-le shénme_x]]]

Step 3: The lower TP1 in the complement position of DisjP is deleted.

- (51) [DisjP [TP2 nǐ [T' chī-le shénme]] [Disj⁰ Disj⁰-*ma* [~~TP1 nǐ [T' ∃x chī-le shénme_x]]~~]]]

At the end of the derivation, *shenme* ‘what’ in the TP2, which is located at the Spec of DisjP, fails to get an ∃-reading, contrary to the fact. This example constitutes an argument against the disjunction analysis of SFP. By contrast, the comp-to-spec raising analysis precisely predicts the indefinite reading of the *wh*-object. The derivation goes as follows.

Step 1: The C head *ma* takes the TP as its complement. The particle *ma* triggers the ∃ quantifier at the level of T' and ∃ c-commands the object *wh*-word *shenme* ‘what’ so that the latter obtains an ∃-reading *something/anything*.

- (52) [C⁰ C⁰-*ma* [TP nǐ [T' ∃x chī-le shénme_x]]]

Step 2: The complement TP raises to the Spec of CP.

- (53) [CP [TP nǐ [T' ∃x chī-le shénme_x]] [C⁰ C⁰-*ma* [~~TP nǐ [T' ∃x chī-le shénme_x]]~~]]]

Since the ∃ quantifier has already been generated inside the TP before its raising, the ∃-reading of *shenme* ‘what’ is therefore guaranteed.

7. A minimalist derivation

Pan (*to appear*) proposes an analysis which also adopts the idea of comp-to-spec raising of SFP but the motivation of such a raising and the technical details differ from the previous analyses. Under the minimalist framework, each SFP projects a phase and bears an EPP feature, which must be satisfied. The EPP of a phasal head C can be satisfied by externally merging an XP or a null operator at the Spec CP, or, by internally merging XP at the Spec under an Agree relation between the Probe C and the Goal XP. If there is no candidate to satisfy the EPP feature, the entire complement of the phase head C must raise to the Spec CP as a last resort to fulfill the requirement of the EPP.

The phasehood tests applied to SFPs by Pan are based on Chomsky (2000, 2001) and Citko (2014). Each phrase projected by an SFP is a derivational and transferable unit for Conceptual-Intentional (C-I) interface and for Articulatory-Perceptual (A-P) interface, which satisfies the basic criteria for phases. As any phase head, an SFP triggers Spell-Out and Transfer. The complement of an SFP is also a transferrable unit, which is known as an important property of a phasal domain. Both a phrase headed by an SFP and the complement of an SFP are phonological units, just like a phase and its phasal domain. Most importantly, an element moving out of a phase headed by an SFP can be interpreted at its edge. The complement of an SFP is moved to the edge in order to postpone the transfer of the phrases that are embedded within the complement, which allows these phrases to be extracted later. An important argument in support of this analysis is that when the concerned phase edge is occupied and unavailable for the moved complement, the phrases embedded within the complement will not be able to be extracted in a later stage after the complement is transferred to the interfaces.

Let us start with simple cases. (54) involves two SFPs, each of which heads a phase. (55) is derived from (54) by moving the topic phrase *that painting* out of the TP to the Spec of TopP.

(54) 张三买那幅画儿了吗?

[_{iForceP} [_{S.AspP} [_{TP} Zhāngsān mǎi nà-fú huàr] **le**] **ma**]?
 Zhangsan buy that-CL painting LE Q_{yes-no}
 ‘Did Zhangsan buy that painting?’

(55) 那幅画儿, 张三买了吗?

[_{TopP} Nà-fú huàr_j, [_{iForceP} [_{S.AspP} [_{TP} Zhāngsān mǎi t_j] **le**] **ma**]]]?
 that-CL painting Zhangsan buy LE Q_{yes-no}
 ‘(As for) that painting, did Zhangsan buy it?’

I briefly illustrate the major steps of the minimalist derivation in Pan (*to appear*). The derivation is based on the second version of Phase Impenetrability Condition proposed in Chomsky (2001).

(56) Phase Impenetrability Condition (Second version, Chomsky 2001)

[_{ZP} Z... [_{HP} α [_H YP]]]

H and Z are phasal heads, the domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.

In this version of PIC, the domain of the lower phase becomes inaccessible to further operations only after the next (higher) phasal head is merged. The major steps of the derivation of (55) are presented as follows.

Step 1: Since there is no candidate, which can be externally or internally merged with the S.AsP-*le* head to satisfy its EPP feature, the complement TP raises to the Spec of S.AsP-*le* to satisfy the EPP as a last resort.⁵

(57) [_{S.AsP} [_{TP} **Zhangsan bought that painting**] *le* [_{TP} ~~Zhangsan bought that painting~~]]

Step 2: The S.AsP raises to the Spec of iForce-*ma* to satisfy the EPP feature. Since the iForce is a phase head, the domain of the lower phase S.AsP, which is the lower copy of the TP, is transferred to the interfaces. Note that the higher copy of the TP is in fact at the edge of the phase iForceP, which is an escape hatch, therefore, it has not been transferred.

(58) [_{iForceP} [_{S.AsP} [_{TP} **Zhangsan bought that painting**] *le* [_{TP} ~~Zhangsan bought that painting~~]] *ma* [_{S.AsP} [_{TP} ~~Zhangsan bought that painting~~] *le* [_{TP} ~~Zhangsan bought that painting~~]]]

Step 3: Since the entire TP is at an escape hatch, its internal component is still accessible to further operations. This is why the topic phrase *that painting* can be extracted in the next phase cycle TopP.

(59) [_{TopP} **that painting** Top [_{iForceP} [_{S.AsP} [_{TP} **Zhangsan bought that painting**] *le* [_{TP} ~~Zhangsan bought that painting~~]] *ma* [_{S.AsP} [_{TP} ~~Zhangsan bought that painting~~] *le* [_{TP} ~~Zhangsan bought that painting~~]]]]

By contrast, the situation is different for sentences in (60-61).

(60) 什么张三买那幅画儿了!

[_{NegQP} *Shénme* [_{S.AsP} [_{TP} *Zhāngsān mǎi nà-fú huàr*] *le*]]!
 what Zhangsan buy that-CL painting LE
 ‘It is not true that Zhangsan bought that painting!’

(61) *那幅画儿, 什么张三买了!

*[_{TopP} *Nà-fú huàr*_j, [_{NegQP} *shénme* [_{S.AsP} [_{TP} *Zhāngsān mǎi t_j*] *le*]]]!
 that-CL painting what Zhangsan buy LE
 (Intended) (‘(As for) that painting, it is not true that Zhangsan bought it!’)

In (61), TopP, NegP and S.AsP are phases and their edges are escape hatches for \bar{A} -movement. The idea is that the specifier of NegQP is occupied by the negative *wh*-word *shenme* ‘what’, and as a result, it is unavailable for any \bar{A} -movement. Therefore, the topic phrase *that painting* cannot be extracted from the TP according to PIC. We continue the derivation from the step 1 of (57).

Step 2: The NegQ head is merged with the S.AsP and the negative *wh*-phrase *shenme* ‘what’ is merged in the specifier of the NegQP to satisfy the EPP feature. Once EPP on the NegQ head is satisfied, its complement (i.e., the S.AsP) no longer needs to raise to the Spec of NegQP. Since the NegQ head is a phase head, the domain of the lower phase S.AsP, which is the lower copy of the TP, is transferred to the interfaces. Note that at this moment, the higher copy of the TP is still available for further operations since it is located at the edge of the S.AsP, which is an escape hatch.

⁵ An SFP does not function as a Probe and it does not Agree with any particular Goal.

(62) [_{NegQP} *shenme* NegQ [_{S.AspP} [_{TP} **Zhangsan bought that painting**] *le* [_{TP} *Zhangsan bought that painting*]]]

Step 3: When the next phasal head Top is merged with the NegQP, the domain of the NegQP (i.e., S.AspP) is transferred to the interfaces. The transferred S.AspP is no longer available for further operations. Note that at this stage, the higher copy of the TP has also been transferred and as a result, the topic phrase *that painting* can no longer be extracted, which is why the derivation crashes.

(63) [_{TopP} Top [_{NegQP} *shenme* NegQ [_{S.AspP} [_{TP} **Zhangsan bought that painting**] *le* [_{TP} *Zhangsan bought that painting*]]]]]

8. Conclusion

This paper reviews the main findings concerning SFPs in Chinese. Diachronic studies concentrate on the origin and the evolution of each SFP, which helps us understand the core semantics and the discourse functions of SFPs in modern Mandarin. Traditional grammar tries to capture the core semantics as well as the diverse interpretations developed from the core semantics of each SFP. Syntactically, SFPs head different functional projections split from CP. Both traditional grammarians and generative grammarians are interested in the co-occurrence of different SFPs that necessarily display a rigid order. We have reviewed the proposal that such an order is regulated by a discourse constraint related to subjectivity, according to which higher functional projections are directly linked to the speaker's subjective attitude and are generally excluded from embedded clauses, whereas, lower projections are more related to the sentence subject and are less subjective and can appear in embedded clauses. This constraint offers an explanation to the question of why only some SFPs can appear in embedded clauses whereas the others show root properties. Much work has also been done to account for the final order of SFPs. We compared two different derivations: disjunction analysis and complement-to-specifier raising analysis. Under the Minimalist Program, each SFP heads a phase and bears an EPP feature. Complement-to-specifier raising is required as a last resort to satisfy the EPP. The complement of an SFP is moved to the phase edge so as to postpone the transfer of the phrases that are embedded within the complement, which allows these phrases to be extracted later. Importantly, when the concerned phase edge is not available for the moved complement, phrases embedded within the complement can no longer be extracted in a later stage after the complement is transferred given the Phase Impenetrability Condition.

9. Further reading

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