

Mandarin peripheral construals at the syntax-discourse interface

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1. Introduction

Adopting the split-CP hypothesis (Rizzi 1997, among others), a number of generative linguists have been working on the “cartography” of the left-periphery with the aim of establishing a map, as detailed as possible, of the functional projections in the CP domain. The study of Italian (Cinque 1999, Rizzi 2004, Benincà and Poletto 2004, Cinque and Rizzi 2008) shows that functional projections which host elements such as topics, foci, interrogative words, different adverbs, etc. are hierarchically ordered in precise ways. Whether these heads/projections whose existence has been argued for in Italian are universally true is still an issue. However, this hypothesis helps us to study the left periphery in many other languages, for instance, Chinese (Paul 2002, 2005, 2014, 2015, Badan 2007, Stepanov and Tsai 2008, Tsai 2008, 2011, 2015, Pan 2011b, 2014). Based on the previous work, this article intends to establish an even more fine-grained cartography of the Mandarin left-periphery. It will also show in what way the hierarchy of the functional projections proposed here is compatible with the previously established orders. The general conclusion of this study reveals that the more subjective the interpretation of a functional projection is, the more difficult it is for such a projection to be embedded. Section 2 will be devoted to discuss Main Clause Phenomena and the embeddability test (Hooper and Thompson 1973, Haegeman 2007, 2011, 2012a, b). Section 3 will examine different functional projections occupied by the corresponding root-only sentence final particles and different clausal operators. Section 4 examines topic and focus elements. Section 5 concludes the article.

2. Root phenomena and embeddability

The study of the left-periphery in Chinese undertaken in this article relies on two well-established research domains: i.e. the split-CP (Rizzi 1997, Cinque 1999) and “Main Clause Phenomena (MCPs)” (also referred to as “Root phenomena”) (cf. Hooper and Thompson 1973, Haegeman 2007, 2011, 2012a, b). The split-CP hypothesis gives us a framework where all of the functional projections that appear in the left-periphery are organized in a precise way according to a strict order. In Section 2.1, I will show that the hierarchy of functional projections established in Italian reveals a tendency according to which, the higher a functional projection is, the more subjective its interpretation is. Based on MCPs introduced in section 2.2, I will use the “embeddability test” in section 3 to check if the established order among different functional projections in Chinese is correct. As the reader will see, the result of this test shows that the more subjective the interpretation of a functional projection is, the

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more difficult it is for such a projection to be embedded. Subjectivity here refers to the speaker's evaluation or commitment or opinion.

The logic of the argumentation of Section 2 is the following:

Since (i) the higher a functional projection is, the more subjective its interpretation is (cf. Section 2.1); and (ii) the more subjective the interpretation of a functional projection is, the more difficult it is for such a projection to be embedded (cf. Section 2.2); therefore (iii) the higher a functional projection is, the harder it is for such a projection to be embedded.

Each of the three generalizations in (i-iii) is an independently observed fact; however, as I will show, there is a relation of cause-effect among them. Namely, (iii) is the result and (i) and (ii) are the causes. In this section, I will give a detailed explanation of these three generalizations and their internal relationship in order to set up the background for my study of the Chinese left-periphery in sections 3 and 4.

2.1. *Hierarchy of the functional projections*

Scholars working in the framework of Information Structure hold that a sentence is organized according to a logic based on which, different information components of a sentence are expressed in a certain order by speakers. In other words, in addition to all of the independent syntactic constraints, different word orders also reflect the requirements of the interpretation of sentence components in the discourse. The study on the left periphery establishes a direct link between syntax and discourse. Needless to say, projections like topic and focus map Information Structure into syntactic representation. In a similar fashion, several identified functional projections in the left periphery are also directly linked to the speaker's opinion, attitude, etc. The hierarchy of these functional projections is, of course, syntactically defined. That is to say, we are still dealing with a word order issue. However, the relevant order of these functional projections should be logically consistent with discourse requirements. This point is particularly discussed in de Cat (2012) who argues that root/non-root phenomena (cf. the next section), result from the necessary interaction between syntax and information structure and can only be captured by an interface approach.

As outlined in the introduction, the tendency revealed by this study on Chinese is that the higher a functional projection is, the more subjective its interpretation is. The relatively higher projection is linked to the speaker's attitude in a more direct way than the lower projections. This result is not surprising from the perspective of comparative syntax. I will provide two concrete cases to show that Italian demonstrates the same tendency.

First, take Cinque's (1999) work on adverbs for example. The highest projections are occupied by the adverbs that express the speaker's mood, such as speech act, evaluative, evidential, epistemic meanings, etc. The next projections are those that express different types of modality, such as necessity, possibility, volition, obligation, etc. The lowest ones express the different sentential aspects. Within the set of projections that expresses 'Mood', the lower ones are subject-oriented and the higher ones are speaker-oriented, which means that syntactically, speaker-oriented elements are generally mapped into the highest position in the sentence. As the reader will see in section 3, the result of our study on Chinese also confirms this tendency.

Another example that illustrates the link between syntax and discourse is based on the study of different types of special interrogatives, such as Rhetorical questions, Surprise-Disproval questions and Can't-find-the-value questions, identified by Obenauer (2006). In some Italian dialects, *wh*-elements in these special questions move to higher positions with regard to the standard *wh*-questions. The pragmatic reason behind this hierarchical distribution is that those special questions express 'something more' than the pure illocutionary force. In the present case, the illocutionary force is interrogative that is carried out by ordinary information-seeking question forms; whereas 'something more' expressed by

a special question is understood as the speaker's own judgment, belief, opinion or attitude. A special question is logically linked to the speaker's subjective attitude and it is thus speaker-oriented. This study also confirms that elements that express the speaker's subjective opinion are situated in rather high positions in the left-periphery. Subjectivity relies heavily on the speaker's own opinion and varies according to her/his mood and attitude. Elements like interjectives are used to express the subjective attitude of speakers rather than the utterance itself, and therefore they are speaker-oriented. Elements like tense, aspects and modalities are linked tightly to the interpretation of the sentence itself, and those elements are considered as least subjective components of the sentence and thus they are sentence-oriented. Less subjective components generally do not convey the mood or attitude of the speaker in a direct way. Although it is not easy to draw an absolute boundary between these two categories with precise tests, the difference between them can still be detected. All the other elements, as will be discussed in great detail in Section 3, such as illocutionary force, different types of special question forces, are situated between "being subjective" and "being least subjective". However, the situation is quite complicated. Different types of illocutionary forces cannot be treated uniformly. Illocutionary force such as interrogative and imperative convey the speaker's intention to ask for a reaction from her/his co-speaker. They are still linked to the interpretation of the sentence itself; however, at the same time, they integrate the speaker's expectation from her/his co-speaker. From this point of view, they are more subjective than elements like tense or aspect that are purely sentence-oriented. Illocutionary forces like exclamative is much more subjective than interrogative or imperative since exclamatives are used to express directly the opinion, feeling or attitude of the speaker, which is not merely about the utterance itself. I will show in Section 3, Chinese data clearly confirm these differences. In Chinese, particles expressing the speaker's attitude, traditionally analyzed as interjective or exclamative particles, are situated in the highest position in the left-periphery and they cannot be embedded syntactically at all. On the contrary, interrogatives can still be embedded syntactically but they don't have any direct question force anymore. As for elements that express sentential aspects, they can be embedded and are interpreted in exactly the same way as they are in matrix clauses.

A general hierarchy that seems to exist both in Italian and in Chinese is:

- (1) Speaker's opinion/attitude > Special questions > Illocutionary force >
Sentence modality > Sentential aspects

This order highlights the tendency according to which, the higher a functional projection is, the more subjective its interpretation is.

2.2. Main Clause Phenomena and embeddability test

Main Clause Phenomena (cf. Hooper and Thompson 1973) also referred to as "root phenomena" or "root transformations" (cf. Emonds 1970) are those that occur only in matrix clauses.¹ Syntactic operations such as argument fronting, Negative Constituent Preposing are considered as "root transformations", since they are only allowed in main clauses and excluded from embedded clauses. For instance, topicalization is only allowed in a root sentence (cf. 2) but not in an embedded clause (cf. 3).

(2) *This movie, I don't like very much.*

(3) * *Mildred bought a Mercedes when/before/after **her son**, he purchased stock in Xerox.*

¹ Heycock (2006) extends the definition of "root phenomena" to cover the phenomena that also appear in certain restricted "root-like" embedded clauses.

(Hooper and Thompson 1973)

In fact, Hooper and Thompson (1973) argue that the distribution of the root phenomena cannot be captured in purely syntactic terms. Based on semantic considerations, they propose that root clauses are independent assertions – more generally, speech acts – and speech acts generally cannot be embedded. In English, topicalization is only possible in adjunct clauses whose content is not presupposed, for instance, in adverbial clauses introduced by *because*, which is, according to them, asserted (cf. 4).

(4) *Mildred drives a Mercedes because **her son, he** owns stock in Xerox.*

Topicalization is not available in adverbial clauses introduced by *when*, *before* and *after*, because their content is presupposed and therefore, not asserted (cf. 3). Sometimes, it is the embedded clause constitutes the main assertion, which is then considered as a parenthetical expression, and in this case, topicalization is allowed.

Recently, MCPs have been extensively studied in the seminal work by Haegeman for different types of clauses in English (Haegeman 2006, 2007, 2010a, b, 2011, 2012a, b). She points out that certain types of embedded clauses cannot undergo root transformations, such as argument fronting (i.e. topicalization).

- (5) a. **When the second chapter my students couldn't handle, I returned to the intro.*
b. **When not a single exercise could he finish, I returned to the first chapter.*

(Haegeman 2012a: x)

Root Phenomena are captured by syntactic devices in Haegeman's work. In her latest movement approach, an epistemic operator is generated at CP in certain types of clauses and this operator can block the potential movement of a clause to the CP due to intervention effects.²

MCPs are very important in my study insofar as they constitute the essential backdrop for the test that I will use – the embeddability test. The idea is that elements demonstrating root properties cannot appear in embedded clauses; whereas elements not demonstrating root properties can be embedded. There are two aspects concerning the root phenomena that need to be checked. One is to see if an element can be embedded *syntactically*, i.e. we have to check whether the syntactic form of such an element can appear in an embedded clause. The other is to see if this element can be embedded *semantically/pragmatically*, i.e. we have to check if a syntactically embedded element still contributes the same pragmatic function or the same discourse force to the embedded clauses as it does to a matrix clause. Two aspects (i.e. syntactic and semantico-pragmatic) of the embeddability test give a total of four possible combinations; however, one of them is logically excluded since it is impossible for an element to be embedded pragmatically, but not syntactically. A main clause cannot express an embedded meaning because the former is simply not embedded. One way to put this reasonably is to say that syntactic embeddability limits pragmatic embeddability in that a syntactically embedded element has the possibility to exercise (or not) a pragmatic function. If an element cannot appear syntactically in an embedded context at the first place, then there is no chance for it to express an embedded pragmatic function.

<i>Syntactically</i>	<i>Semantically/pragmatically</i>	
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² One of the advantages of this approach is to make a distinction between “central” adverbial clauses and “peripheral” adverbial clauses, the latter being relatively independent from the main clause. Only peripheral adverbial clauses have root properties (Haegeman 2010, 2012a, b).

<i>embedded?</i>	<i>embedded?</i>	
yes	yes	OK
yes	no	OK
no	no	OK (root phenomenon)
no	yes	*****

Table 1 Syntactic and semantico-pragmatic embeddability

In the table above, only the third case where an element can neither be embedded syntactically nor pragmatically is treated as a root phenomenon.

The aim of applying this test to Chinese is to see which functional projections can be embedded and which ones cannot. As the reader will see immediately below, based on English and Italian data, the generalization that we will obtain is that the more subjective the interpretation of a functional projection is, the more difficult it is for such a projection to be embedded. In section 3, we will see that Chinese data also support this claim.

2.2.1. Sentential tense and aspect

The general idea is that elements that are linked to the sentential tense or aspect (cf. 6) or to the sentence modality (cf. 7) can appear in the embedded clauses in which they contribute an interpretation. In this sense, these elements can be embedded both syntactically and pragmatically.

- (6) a. *Mary bought a syntax book.*
b. *I know that [Mary bought a syntax book].*
- (7) a. *It MIGHT be raining outside.*
b. *The fact that [it MIGHT be raining outside] upsets me.*

2.2.2. Illocutionary force

A “locutionary act” produces a meaningful linguistic expression and an “illocutionary act” is performed in saying something. An illocutionary act is the pragmatic of illocutionary force of an utterance (*sic* Austin 1962, Searle 1975). An illocutionary act is also referred to as a “speech act” and includes assertives, directives, commissives, expressives and declaratives. Recall that Hooper and Thompson (1973) argue that root clauses are independent assertions – more generally, speech acts – and speech acts generally cannot be embedded. Root clauses have a functional feature that allows them to express assertions or other kind of speech acts, and due to this feature they cannot be embedded.³ Indirect illocutionary aims cannot be made explicit and the force of that implicit directive cannot be explicitly specified (Chierchia and McConnell-Ginet 2000).

In my sense, an illocutionary force cannot be embedded semantically or pragmatically even though it can appear syntactically in embedded clauses.⁴ A direct question like (8a) has the force to require an answer from her/his interlocutor; however, an indirect question like (8b) does not bear such a force. Similarly, a direct imperative sentence as in (9a) has the force to ask someone to do something; whereas an indirect imperative as in (9b) does no longer have such a force. Thus, interrogatives and imperatives can appear in their embedded forms

³ Krifka (2014) shows that only certain types of speech acts can be embedded due to their own semantics. He proposes a model-theoretic reconstruction of speech acts, leading to a framework in which both truth-conditional semantics and speech-act theory can be formulated.

⁴ More detailed formal analysis on illocutionary force and embeddability can be found in Green (2000).

and they can be embedded syntactically; however, when embedded, they cannot contribute their illocutionary force to the interpretation of the sentence.⁵

- (8) a. How *did John fix his car*?
 b. *Mary asked me* [how John fixed his car].
- (9) a. Open *the door*!
 b. *He asked me to open the door*.

2.2.3. Special questions

Special questions like rhetorical questions can be embedded neither syntactically nor pragmatically. The forced embedded rhetorical question cannot express the rhetorical meaning at all (cf. 10b).

- (10) a. *Who cannot ride a bicycle?! (= Everyone knows how to ride a bicycle!)*
 b. * *He knows* [who cannot ride a bicycle]?!
 (Intended meaning ‘He knows that everyone can ride a bicycle.’)

A direct rhetorical question such as (10a) implies a strong negative assertion and once this rhetorical question is embedded, it does not have the corresponding negative implication anymore. Therefore, a rhetorical question cannot be embedded. In some Italian dialects, such as the Florentine dialect examined in great detail by Garzonio (2004), a rhetorical question – unlike a standard *wh*-question takes a specific form involving the particle *o* that is excluded from embedded contexts (cf. 11).

- (11) * Dimmi *o* quando tu vieni.
 tell-me *o* when you come
 (Intended meaning ‘Tell me when you will come.’)
 Garzonio (2004)

Since rhetorical questions express the speaker’s mood and attitude, they are the least possible elements that can be embedded. Speaker’s mood and attitude bear strong expressive force, such as speech act and evaluative mood, and this force can only be expressed through direct speech and therefore, they cannot be embedded syntactically or pragmatically.

2.2.4. Summary

⁵ As one of the anonymous reviewers points out, sentences like “I just asked you how you did it!” definitely requires an answer. In fact, this sentence is interpreted more as a weak imperative than a true question. The full intention of the speaker can be roughly interpreted as “Please answer my question that I asked you: how did you do it?” The fact that the co-speaker has a reaction to this sentence could be due to the imperative force associated with it. For example, this sentence can exist in the following dialogue:

- (i) A: *How did you do it?*
 B: (ignore....doing his own thing.....)
 A: (raising his voice) *I just asked you how you did it!*
 B: *Sorry, I didn’t hear you speaking. In fact, I re-down loaded the App again....*

The answer provided by Speaker B at the last line of the dialogue is more like a reaction to an imperative than a pure answer to a question. In other words, it is possible that the force associated with an embedded question is not anymore a pure interrogative force. Another independent reason could be due to the use of the first and second persons in the sentence. If we use the third person in the same context, the sentence has no such imperative force anymore, as shown in the example (8), because imperatives are generally incompatible with third persons.

<i>Syntactically embedded?</i>	<i>Semantically embedded?</i>	<i>Elements</i>	
Yes	yes	Tense, aspects, modality	OK
yes	no	Illocutionary force	OK
no	no	Special questions Subjective evaluation/attitude	OK (root phenomenon)
no	yes	*****	*****

Table 2 Syntactic and semantic embeddability

From the table above, we can see that elements that are linked directly to the subjective opinion and attitude of the speaker cannot be embedded; whereas those that are linked to the sentence itself, such as tenses and aspects, can be embedded. This observation suggests that the more subjective the interpretation of a functional projection is, the more difficult it is for such a projection to be embedded.

2.3. Main proposals

In Sections 2.1 and 2.2, we observed respectively that i) the higher a functional projection is, the more subjective its interpretation is and that ii) the more subjective the interpretation of a functional projection is, the more difficult it is for such a projection to be embedded. These two observations lead to a general tendency according to which, the higher a functional projection is, the harder it can be embedded. As I will demonstrate in Section 3, the study on Chinese confirms this generalization. Note that the embeddability test is a possible way to check the hierarchy that we establish. If we say that to some extent, it is the discourse that determines the hierarchy of the functional projections in syntax, then it could also be the case that it is the discourse that determines the embeddability of those functional elements. For instance, as a speaker-oriented element, a particle that expresses the speaker's subjective evaluation is placed in a rather high position in the left periphery; and at the same time, it resists to be embedded syntactically because the force of such an element must be carried out by direct speech. The following example shows that the particle *ya*, situated at the highest position in the left-periphery in Chinese, expresses astonishment or surprise, and it cannot be embedded (cf. detailed description in section 3.6).⁶

- (12) a. *Wǒ míngtiān bù néng qù ya!*
I tomorrow Neg can go SFP
'I cannot go (there) tomorrow!'
- b. [*Wǒ míngtiān bù néng qù (*ya)*]
I tomorrow Neg can go SFP
de shuōfǎ shì zhēnde.
DE claim be true
'The claim that I cannot go (there) tomorrow is true.'

⁶ The abbreviations used in the glosses are as follows: Cl: classifier; DE: the structural particle placed between an NP and its determiner; Exp: experiential aspect; Imp.: imperative marker; Neg: negative element; Perf: perfective aspect marker; Prog: progressive aspect marker; scl: subject clitics; SFP: Sentence Final Particle; TM: Topic Marker.

In this section, we notice that it is possible to use the embeddability test to verify the hierarchical order of the functional projections in the left-periphery. In the next section, we will examine each projection in the left periphery of Chinese in succession.

3. Core projections

3.1. Introduction

Paul (2005, 2014, 2015) proposes the following three-layered hierarchy for sentence final particles (SFPs), which are analyzed as root complementizers.

(13) (TP) < Clow (*lázhe, le* etc.) < Force (*ma, ba* etc.) < Attitude (*a* etc.)
(Paul 2014, 2015)

In this section, I will show that each layer proposed by Paul (2014, 2015) can be further decomposed, since each of them corresponds to a cluster of different functional projections, whose order is fixed.

3.1.1. Two types of functional projections

It has been noted that different types of functional projections in the left periphery do not have the same status: some form the “core” of the left periphery, such as ForceP, FinP, etc. and the others are considered as “adjoined materials” or “optional projections”, such as TopP and FocusP. While the core projections are obligatorily present, projections hosting “adjoined materials” are optional. This idea was proposed in Boeckx (2008) based on the original idea of Rizzi (1997) and further developed in Boeckx (2008). Namely, under Boeckx’s hypothesis of “X’ everywhere”, the core projections in the left periphery are similar to X° items whose presence is always obligatory; however, the optional projections are similar to adjuncts whose presence is optional in the X’ configuration. The idea of the existence of these two types of functional projections, core vs. optional, is also supported by the Chinese data. The core and the optional projections are given below:

- Core projections: S.AspP (sentential aspect particles);
OnlyP (sentential *only*-type focus particles);
iForceP (illocutionary force particles and operators),
SQP (special question operators),
AttP (speaker’s subjective attitude particles)
- Optional projections: Topics, foci

The hierarchy of the core projections that I propose in this section is as follows:

(14) TP < **S.AspP** < **OnlyP** < **iForceP** < **SQP** < **AttP1** < **AttP2**
(Note: The two layers of AttP will be discussed later in this section)

The complete picture of the left-periphery looks as follows:

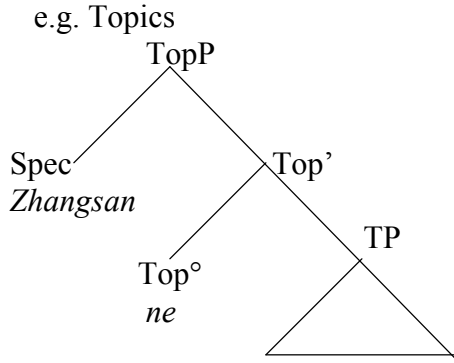
TP < (FocP<TopP) < **S.AspP** < (FocP<TopP) < **OnlyP** < (FocP<TopP) < **iForceP**(FocP<TopP) < **SQP** < (FocP<TopP) < **AttP**

This section will only explore the core projections in the left periphery. Topics and foci treated as optional projections will be discussed in Section 4.

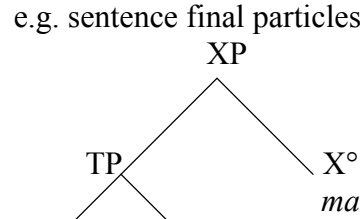
3.1.2. Head-initial and head-final configuration in Chinese

Both head-initial and head-final configurations exist in Chinese.

a) Head-initial configuration :



b) Head-final configuration:



The so-called pause particle *ne* here is considered as a topic marker realizing the head of TopP (cf. Gasde & Paul 1996). The particle *ma* transforms a declarative sentence into a *yes-no* question and is placed at the end of the sentence. I will discuss both particles in detail later in this section.

3.1.3. Goal of this section

I will introduce each of the core functional projections in this section and for each projection, I will list the most important particles or operators occupying the head of such a projection and specify their interpretations. Then, I will use syntactic or semantic tests to show the relevant position of each projection in the left-periphery by comparing it with other core projections. When the two compared projections are both head-final, then the syntactic word order will tell us their hierarchy. In contrast, if among the two compared items, one is head-initial and the other is head-final, the relevant order between them is determined by comparing their scopes. Finally, we will also test whether the relevant particles can be embedded. As I emphasized in Section 2, Chinese data presented in this section will confirm the general tendency according to which, the higher a projection is, the more subjective its interpretation is and thus the harder it can be embedded.

3.2. S.AspP (sentential aspects)

3.2.1. Sentence final particles

Sentence final particles like *lázhe* and *le* express the sentential aspect. Generally, *lázhe* expresses ‘recent past’ and *le* is used to indicate a change of state/ inchoative (Zhu 1982). *Lázhe* expresses a most recent event or state. It is placed at the sentence final position, and is paraphrased by the temporal adverbial *just now* in English, as shown in (15). *Lázhe* scopes over the whole TP on its left. In the cartography of the left periphery that I propose, *lázhe* occupies the head position of the functional projection S.AspP (i.e. Sentential Aspect) that takes the entire TP as its complement.

- (15) [_{S.AspP} [_{TP} *Lǐ Míng xiàwǔ zài fángjiān kàn shū*] [_{S.Asp°} *lázhe*]].
 Li Ming afternoon at room read book RECENT.PAST
 ‘Li Ming was reading in (his) room in the afternoon just now.’

The negative adverb *méi* ‘have not’ inside the TP in (16) does not scope over *lázhe*, as indicated in the interpretation of the sentence, which suggests that it is *lázhe* that takes the widest scope. In this case, we observe a transparency between the syntactic hierarchy and the semantic scope.

- (16) [S.AspP [TP *Wǒ gānggāng méi zuò shénme*] [S.Asp° *láiizhe*]].
 I just.now Neg do what RECENT.PAST
 a. ‘Just now, I didn’t do anything.’ (RECENT.PAST > ¬)
 b. # ‘It is not the case that [I did anything just now].’ (# ¬ > RECENT.PAST)

The state-changing particle *le* behaves in a similar way and takes scope over the TP, as in (17a). Also note that *láiizhe* and *le* cannot co-occur in the same sentence, as in (17b).

- (17) a. [S.AspP [TP *Jīntiān zǎoshàng xià xuě*] [S.Asp° *le*]].
 today morning drop snow INCHOATIVE
 ‘It snowed this morning.’
 b. * *Wǒ chī wǎnfàn le láiizhe / láiizhe le.*
 I eat diner INCHOATIVE RECENT.PAST RECENT.PAST INCHOATIVE
 (Lit. ‘I had my diner just now’)

We have two ways to explain why these two aspect particles cannot co-exist in the same sentence. Their incompatibility could be due to the conflict between two different sentential aspects in that a sentence cannot be interpreted in recent past and at the same time bear a changing of state. Such an incompatibility could also suggest that these two particles are competing for exactly the same syntactic position, and therefore, they are mutually exclusive.

3.2.2. Embeddability test

(18a) and (18b) have exactly the same word order; however, they correspond to two different surface structures that give respectively two different readings. In (18a), *láiizhe* is embedded within the subordinate clause and it gives a recent past reading to the embedded predicate *was here just now*. On the contrary, in (18b), *láiizhe* marks the verb *saw* of the main clause.

- (18) a. *Wǒ kànjiàn [S.AspP [TP *Zhāngsān gāngcái zài zhèr*] [S.Asp° *láiizhe*]].*
 I see Zhangsan just-now at here RECENT.PAST
 ‘I saw that [Zhangsan was here just now].’
 b. [S.AspP *Wǒ kànjiàn [TP *Zhāngsān gāngcái zài zhèr*] [S.Asp° *láiizhe*]].*
 I see Zhangsan just-now at here RECENT.PAST
 ‘I saw just now that [Zhangsan was here].’

(19) shows similar facts. In (19a), the inchoative *le* is embedded within the subordinate clause and contributes to the change of state reading of the embedded predicate *has been to the library*. By contrast, in (19b), *le* is construed with the main clause and in this case, *le* only contributes the aspectual interpretation to the matrix clause.

- (19) a. *Wǒ quèxìn [S.AspP [TP *tā yǐjīng qù-guò túshūguǎn*] [S.Asp° *le*]].*
 I to.be.certain he already go-Exp library INCHOATIVE
 ‘I am sure that he has already been to the library.’
 b. [S.AspP [TP *Wǒ quèxìn [CP *tā jīnwǎn bú huì lái*] [S.Asp° *le*]].*
 I to.be.certain he tonight Neg will come INCHOATIVE

‘I am sure now that he would not come tonight (but I was not sure of that before...).’

(20) shows two unambiguous cases where *lázhe* is clearly embedded within the subordinate clauses. (20a) contains an internal concessive clause and (20b) contains a relative clause.⁷

- (20) a. *Wǒ* [_{CP} *jiùsuàn* [_{S.AspP} *Zhāng sān gāngcái zài zhèr láizhe*]] *yě huì pīpíng tā de.*
 I even.if Zhangsan just.now at here RECENT.PAST also will criticize him DE
 ‘I would have criticized Zhangsan [even if he had been here just now].’
- b. [_{CP} [_{S.AspP} *Gāngcái gěi wǒ dǎdiànhuà láizhe*]
 just.now to me phone RECENT.PAST
de] *nà-gè rén dàodǐ shì shéi?*
 DE that-Cl person after.all be who
 ‘Who in fact is the person [who was calling me just now]?’

The sentence final particles *lázhe* and *le* express sentential aspects and they occupy the head position of the functional projection S.AspP in the left periphery. Both particles can be embedded syntactically; therefore, they do not constitute root phenomena. They can be embedded semantically as well since they still mark the aspect of the embedded clause.

3.3. OnlyP (Only-type sentential focus)

3.3.1. Sentence final particles

Elements like *éryǐ* and *bàle* are often used in spoken Chinese to express the meaning of ‘only’ and they appear in the sentence final position. Erlewine (2011) identifies two different *éryǐ* ‘only’, and one of them is treated as a lowC head that scopes over the whole TP. *Eryǐ* ‘only’ can take either a predicate scope, as in (21a) or a sentential scope, as in (21b).

⁷ There are two possible positions for adverbial subordinate clauses in Chinese, preceding or following the subject. External adverbial clauses (cf. iia) are analyzed as clausal topics by Paul (2005, 2015). TP internal adverbial clauses (cf. iib) appear in preverbal-postsubject position, which is the regular position for non-clausal adverbial phrases in Chinese.

- (ii) a. External adverbial clause, Subject + V + DO
 [_{CP} *Jiùsuàn* [_{S.AspP} *Zhāngsān gāngcái zài zhèr láizhe*]], *wǒ yě huì pīpíng tā de.*
 even.if Zhangsan just.now at here RECENT.PAST I also will criticize him DE
 ‘I would criticize Zhansang [even if he were here just now].’
- b. Subject + TP Internal adverbial clause + V + DO
Wǒ [_{CP} *jiùsuàn* [_{S.AspP} *Zhāngsān gāngcái zài zhèr láizhe*]] *yě huì pīpíng tā de.*
 I even.if Zhangsan just.now at here RECENT.PAST also will criticize him DE
 ‘I would criticize Zhansang [even if he were here just now].’

The difference between these two types of clauses in Chinese reminds us of the distinction between central adverbial clause and peripheral adverbial clause made by Haegeman in her serial work (2006, 2007, 2010a, b, 2011) although the differences in Chinese does not completely correspond to those observed for English. Cf. Pan (2011a:198-209) for further discussion of these differences.

- (21) a. *Tā hē chá éryǐ, méi hē jiǔ.*
 he drink tea only have.not drink wine
 ‘He only drinks tea, but no wine.’
- b. *Akiu shuōshuo éryǐ, dàn Xiǎodī zǒngshì rènzhēn qù zuò.*
 Akiu say-say only but Xiaodi always serious go do
 ‘Akiu was just talking, but Xiaodi always carries it through seriously.’

The meaning of the particles *éryǐ* or *bàle* is roughly paraphrased as ‘only’ in English. However, they are not adverbs that have lexical content but grammatical particles that express the meaning of exclusiveness. They are better analyzed as heads of a functional projection, all the more so as they occur in sentence-final position, in contrast to adverbs which must precede the verb. This is the main motivation for Erlewine (2011) to treat *éryǐ* as a lowC head in the spirit of Paul (2014). Note though that the LowC proposed by Paul (2014, 2015) in fact contains several projections in a fixed hierarchy. The particles *éryǐ* and *bàle* mark the sentence as an exclusive focus and in our system, they can occupy the head position of a projection dedicated to this interpretation, noted as *OnlyP*. As we will see immediately below, *OnlyP* is always higher than *S.AspP* in Chinese.

- (22) a. [_{OnlyP} [_{TP} *Wàimiàn xià yǔ* [_{Only°} *éryǐ*]]].
 outside drop rain ONLY
 ‘It is only raining outside! (not snowing or anything else...)’
- b. [_{OnlyP} [_{TP} *Wǒ shuō-shuo* [_{Only°} *bàle*]]].
 I say-say ONLY
 ‘I’m only talking! (Don’t take it seriously...)’

3.3.2. Order

OnlyP scopes over *TP* and *S.AspP*. The co-occurrence of *OnlyP* and *S.AspP* is possible and the relevant order is *OnlyP* > *S.AspP*, as shown in (23).

- (23) *OnlyP* > *S.AspP*
- a. [_{OnlyP} [_{S.AspP} [_{TP} *Tā bú qù Bālí*] [_{S.Asp°} *le*]] [_{Only°} *éryǐ*]]...
 she Neg go Paris INCHOATIVE ONLY
 ‘She only does not go to Paris anymore, (but she will still visit France.)’
- b. [_{OnlyP} [_{S.AspP} [_{TP} *Tāmen gāngcái zhībúguò*
 they just.now no.more.than
chǎo jià] [_{S.Asp°} *láizhe*]] [_{Only°} *éryǐ*]]...
 quarrel row RECENT.PAST ONLY
 ‘They were only quarrelling just now, (not fighting.)’

The relevant sentence is ungrammatical when we inverse the order between *OnlyP* and *S.AspP* as in (24).

- (24) * *S.AspP* > *OnlyP*
- a. * *Tā bú qù Bālí éryǐ le.*
 she Neg go Paris ONLY INCHOATIVE

(Intended meaning ‘She only does not go to Paris anymore, (but she will still visit France.)’)

- b. * *Tāmen gāngcái zhǐ-búguò chǎo jià éryǐ láizhe.*
they just.now no-more-than quarrel row ONLY RECENT.PAST
(Intended meaning ‘They were only quarrelling just now, (not fighting.)’)

3.3.3. Embeddability test

OnlyP can appear in embedded clauses where it keeps its focus interpretation, which is demonstrated in the following sentences.

- (25) [_{OnlyP} *Tāmen gāngcái zhǐ shì chǎo jià* [_{Only°} *éryǐ /bàle*]]
they just.now only be quarrel row ONLY
de shuōfǎ bù néng shǐ rén xìn fú.
DE rumor Neg can make people convince
‘The rumor that they were only quarreling just now is not convincing.’

- (26) *Nǐmen [rúguǒ [_{OnlyP} zhǐ shì chǎojià [_{Only°} éryǐ /bàle]]]*
you if only be quarrel ONLY
jiù bú huì mǎnshēn shānghén. (TP-internal *if*-conditional)
then Neg will whole.body bruise
‘You would not be covered with bruises everywhere if you had only been quarreling.’

The sentence final particles that mark *only* focus can be embedded syntactically and contributes their semantics to the embedded clause. Therefore, they are not a root phenomenon.

3.4. *iForceP*: illocutionary force

3.4.1. Sentence final particles and operators

Certain sentence-final particles that are used to indicate the illocutionary force transform a declarative sentence into a question, an imperative etc. I list some of them below:

- *ma* : root *yes-no* question marker;
- *méiyǒu* : perfective *yes-no* question marker;
- *ba1* : weak imperative marker;⁸
- *ba2* : presupposed *yes-no* question marker;
- *null Q-operator*: *wh*-question operator (Cheng 1991, Aoun and Li 1993, Tsai 1994);
- *shìfǒu*: embedded *yes-no* question marker.

I assume that an independent functional projection, say, *iForceP* in which *i* stands for “illocutionary”, is dedicated to the illocutionary force and that its head position is occupied by the particles listed above.⁹ Let us begin with the weak imperative marker *ba1* that is used to make a suggestion. *Ba1* is placed at the head position of *iForceP* as indicated in (27).

⁸ The particles *ba1*, *ba2* and *ba3* have the same pronunciation and graph.

⁹ The *iForceP* projection and the *ForceP* originally proposed by Rizzi (1997) are motivated for similar reasons. *ForceP* is used to replace the traditional CP by Rizzi and *ForceP* head selects clause types. Clause types are related to different types of illocutionary forces, such as declarative, interrogative, etc. In the present article, point is made explicitly by labeling it as *iForceP* in Chinese. As the reader will see, only the particles related to interrogative or imperative can be hosted in *iForceP*. The particles related to the subjective opinion or attitude of the speaker, which were traditionally treated as exclamative particles, are situated in a higher projection-

- (27) [iForceP [TP *Wǒmen yìqǐ qù Yìdàlì*] [iForce° *ba1*]]!
 we together go Italy Imp.
 ‘Let us go to Italy together!’

Pragmatically, two different types of illocutionary force cannot co-exist in the same sentence. For instance, a sentence cannot be interpreted at the same time as a *yes-no* question and as a *wh*-question. It is observed in Chinese that the particles indicating different types of illocutionary force cannot co-occur in the same sentence, which suggests that these elements are supposed to occur in the same syntactic position. (28) below shows that the particles *ba1* and *ma* cannot co-occur given that the same sentence cannot be an imperative sentence and a question at the same time.

- (28) * *Wǒmen yìqǐ qù Yìdàlì ba1 ma*
 we together go Italy Imp. Q_{yes-no}

3.4.2. Order

Projection iForceP is higher than S.AspP, which is consistent with the relevant scope order between an illocutionary force and a sentential aspect. For example, (29a) shows that the presupposed *yes-no* question particle *ba2* must scope over the recent past particle *láizhe*; otherwise, the sentence will be ungrammatical, as shown in (29b).¹⁰

- (29) a. [iForceP [S.AspP [TP *Nǐ gāngcái hē chá*] [S.Asp° *láizhe*]] [iForce° *ba2*]]?
 you just.now drink tea RECENT.PAST *yes-no*
 ‘You were drinking tea just now, weren’t you?’ (iForceP > S.AspP)
- b. * *Nǐ gāngcái hē chá ba2 láizhe ?*
 you just.now drink tea *yes-no* RECENT.PAST
 (Intended meaning ‘You were drinking tea just now, weren’t you?’)
 (* S.AspP > iForceP)

Similarly, iForceP must be higher than *OnlyP*, as demonstrated in (30).

- (30) a. [iForceP [OnlyP [TP *Tāmen jiù jiàn-le yí-cì*] [Only° *éryǐ*]] [iForce° *ba2*]]?
 they only meet-Perf once ONLY *yes-no*
 ‘They met each other only once, didn’t they?’ (iForceP > *OnlyP*)
- b. * *Tāmen jiù jiàn-le yí-cì ba2 éryǐ ?*
 they only meet-Perf once *yes-no* ONLY (**OnlyP* > iForceP)

When the three of the projections, S.AspP, *OnlyP* and iForceP, co-occur, illocutionary force must scope over both the sentential aspect and the sentential *only* focus. Syntactically, the relevant order is: iForceP > *OnlyP* > S.AspP, as illustrated in (31).

- (31) [iForceP [OnlyP [S.AspP [TP *Tā zhībúguò bù hē chá*]]]
 she no.more.than Neg drink tea

AttP. In contrast, ForceP in Rizzi’s system is also available for *wh*-fronting in exclamative sentences.

¹⁰ *Ba2* is glossed as *yes-no* and the sentences marked by *ba2* are translated as tag questions in English.

[_{S.Asp°} *le*] [_{Only°} *éryǐ*] [_{iForce°} *ma*] ?
 INCHOATIVE ONLY Q_{yes-no}
 ‘Does she only no longer drink tea?’ (iForceP > OnlyP > S.AspP)

A reversal of the order among these three projections will make the sentence ungrammatical (cf. 32).

(32) * *Tā zhǐbúguò bù hē chá le ma éryǐ?*
 she no.more.than Neg drink tea INCHOATIVE Q_{yes-no} ONLY
 (*OnlyP > iForceP > S. AspP)

This hierarchy also applies to the implicit Q-operator that licenses the *wh*-in-situ questions in Chinese. It has been argued that the Q-operator in the sense of Cheng (1991) or its equivalent, Op, in the sense of Tsai (1994) is situated at CP level and scopes over the entire TP. The null operator binds the in-situ *wh*-element as variable and they share the same index. In the present system proposed here, I tentatively suggest that this null *wh*-operator occupies the head position of iForceP. Apparently, it takes scope over the S.AspP and OnlyP (cf. 33).

(33) [_{iForceP} [_{iForce°} Q_j] [_{S.AspP} [_{TP} *Nǐ gāngcái chī shénme_j*] [_{S.Asp°} *lái_jzhe*]]]?
 you just.now eat what RECENT.PAST
 ‘What were you eating just now?’ (iForceP > S.AspP)

In Tsai (2008, 2011, 2015) and Stepanov and Tsai (2008), different layers are proposed for different readings of the relevant *wh*-adverbs like *how* and *why*. (34) illustrates the instrumental reading of *how* that is situated in a lower position in the left periphery and it occupies the IntP position (i.e. Interrogative Projection).¹¹

(34) *Tāmen huì zěnmē chùlǐ zhè-jiàn shì?*
 they will how handle this-Cl matter
 ‘How will they handle this matter?’

A standard question is basically understood as a “request for information” (or “information seeking”), and this function is determined by the illocutionary force of questions. Although iForceP and IntP are not entirely the same projections, both of them seem to be linked to the standard “information seeking” reading of questions. The difference between these two projections is that iForceP can be occupied by different sentence final particles that contribute different types of illocutionary force to the sentence, whereas IntP encodes a specific interpretation of *wh*-elements.

3.4.3. Embeddability test

Let us now turn to the embeddability of these illocutionary force particles. We begin by examining the *yes-no* question particle *ma*. One important characteristic of *ma* is that it can only be used in root questions, never in indirect questions, as demonstrated in (35). This point was observed in Li and Thompson (1981) and discussed in detail by Tang Ting-Chi (1989).

(35) a. [_{iForceP} [_{TP} *Nǐ xǐhuān Fǎguó*] [_{iForce°} *ma*]]?
 you like France Q_{yes/no}

¹¹ The causal *how* is generated at IntP which is lower than the denial reading of *how* that we will discuss in the next section.

‘Do you like France?’

- b. * *Tā wèn wǒ* [_{iForceP} [_{TP} *nǐ xǐhuān Fǎguó*] [_{iForce°} *ma*]].
 he ask me you like France *Q_{yes/no}*
 (Intended meaning: ‘He asks me if you like France.’)
- c. * [_{iForceP} [_{TP} *Tā chī-le fàn*] [_{iForce°} *ma*]] *bú zhòngyào*.
 she eat-Perf rice *Q_{yes-no}* Neg important
 (Intended meaning: ‘Whether she had dinner is not important.’)

By contrast, the indirect *yes-no* question marker *shìfǒu* ‘yes-no’ can never be generated at matrix *iForce* head position to mark a root *yes-no* question; also note that it is head-initial, as shown in (36a, b).

- (36) a. * [_{iForceP} [_{iForce°} *Shìfǒu*] [_{TP} *nǐ xǐhuān Fǎguó*]]?
 yes-no you like France
 (Intended meaning: *‘Whether you like France?’)
- b. *Tā wèn wǒ* [_{iForceP} [_{iForce°} *shìfǒu*] [_{TP} *nǐ xǐhuān Fǎguó*]].
 he ask me yes-no you like France
 ‘He asks me whether you like France.’ (indirect *yes-no* question)

A direct *yes-no* question bears a strong illocutionary force, for which reason the co-speaker interprets it as a true question and s/he is required to give an answer. On the contrary, an indirect *yes-no* question does not have this illocutionary force and therefore does not require any answer. We are not suggesting that an indirect question has no semantic interpretation; on the contrary, an indirect question has a specific semantic interpretation that is different from a direct question. Syntactically, a *yes-no* question can appear in an embedded clause that is demonstrated in many languages. Thus, the fact that the root SFP *ma* is excluded from embedded contexts and that the embedded particle *shìfǒu* ‘yes-no’ is excluded from root contexts must be regarded as a syntactic characteristic of these particles. This claim is also supported by the fact that a perfective *yes-no* question marker, *méiyǒu* ‘have not’, can appear freely either in a root clause (cf. 37a) or in an embedded clause (cf. 37b, c).

- (37) a. [_{iForceP} [_{TP} *Nǐ chī-le fàn*] [_{iForce°} *méiyǒu*]]?
 you eat-Perf rice not.have
 ‘Have you had dinner?’
- b. [_{iForceP} [_{TP} *Nǐ chī-le fàn*] [_{iForce°} *méiyǒu*]] *bú zhòngyào*.
 you eat-Perf rice not.have Neg important
 ‘Whether you had dinner is not important.’
- c. *Wǒ bù zhīdào* [_{iForceP} [_{TP} *nǐ chī-le fàn*] [_{iForce°} *méiyǒu*]].
 I Neg know you eat-Perf rice not.have
 ‘I don’t know if you had dinner.’

The embeddability of these different types of *yes-no* question particles is entirely syntactic: *ma* is a root phenomenon; *shìfǒu* ‘yes-no’ can only be used in an embedded context and *méiyǒu* ‘have not’ can be used in both environments.

The SFP *ba1* is used to express a weak imperative meaning and to make a suggestion. It can only be used in root sentences (cf. 38).

- (38) a. $[_{\text{iForceP}} [_{\text{TP}} \text{Wǒmen} \text{ yìqǐ} \text{ qù}] [_{\text{iForce}^\circ} \text{ba1}]]!$
 we together go Imp.
 ‘Let us go together!’
- b. * $[_{\text{iForceP}} [_{\text{TP}} \text{Wǒmen} \text{ yìqǐ} \text{ qù}] [_{\text{iForce}^\circ} \text{ba1}]] \text{ de nà-ge yīyuàn bù yuǎn.}$
 we together go Imp. DE that-Cl hospital Neg far
 (Intended meaning: ‘The hospital where we went to together is not far.’)

Although the indirect imperative form exists in English, it no longer has imperative illocutionary force (cf. 39b). In Chinese, the particle *ba1* cannot appear in an embedded context (cf. 39c), which is thus regarded as a syntactic phenomenon since the syntactic form of indirect imperatives exist in languages such as English.

- (39) a. *Come with me!*
 b. *He asked me to come with him.*
 c. * $\text{Tā} \text{ jiào} [_{\text{iForceP}} [_{\text{TP}} \text{wǒmen} \text{ yìqǐ} \text{ qù}] [_{\text{iForce}^\circ} \text{ba1}]]$
 he ask we together go Imp.
 (Intended meaning: ‘He asked us to go (there) together with him.’)

The same observation is made for the particle *ba2*, which cannot appear in an embedded context, either, as shown in (40).

- (40) * $\text{Wǒ xiǎng} \text{ zhīdào} [_{\text{iForceP}} [_{\text{TP}} \text{nǐ} \text{ shì} \text{ xībānyárén}] [_{\text{iForce}^\circ} \text{ba2}]]$.
 I want know you be Spanish yes-no
 (Intended meaning: ‘I wonder if you are Spanish.’)

As for the *wh*-question operator *Q*, previous studies show that it can appear in the embedded CP position (Cheng 1991, Aoun and Li 1993, Tsai 1994). Again, the indirect *wh*-question form exists; however, it does not possess any illocutionary force (cf. 41).

- (41) $\text{Tā wèn} \text{ wǒ/ xiǎng} \text{ zhīdào} [_{\text{iForceP}} [_{\text{iForce}^\circ} \text{Q}_{\text{WH}}] [_{\text{TP}} \text{nǐ} \text{ xǐhuān} \text{ shénme}]]$.
 he ask me want know you like what
 ‘He asked me/ wonders what you like.’

3.4.4. Summary

Table 2 gives a brief summary of the illocutionary force elements in this section.

		<i>Root context?</i>	<i>Embedded context ?</i>
<i>ma</i>	Root <i>yes-no</i> question	yes	no
<i>ba1</i>	Weak imperative	yes	no
<i>ba2</i>	Presupposed <i>yes-no</i> question	yes	no
<i>méiyǒu</i>	Perfective <i>yes-no</i> question	yes	yes
<i>shǐfǒu</i>	Indirect <i>yes-no</i> question	no	yes
<i>Q_{WH}</i>	Null <i>wh</i> -question operator	yes	yes

Table 3 Elements at iForceP

3.5. *SQP: Special questions*

3.5.1. *Different types of special questions in Italian*

As we observed in the previous section, a standard question is basically understood as a “request for information” or “information seeking”; however, there are a number of cases where a sentence in an interrogative form expresses something else than a request for information. These types of questions are often referred to as “special questions”, whose interpretations differ in specific ways from standard information-seeking questions (StQ).¹² Obenauer (2006), working on Italian dialects (for example, Bellunese, a North Eastern Italian dialect), distinguishes three types of special questions: Rhetorical questions (RhQs), Surprise-Disapproval questions (SDQs) and “Can’t-find-the-value” questions (CfvQs), each with a distinct interpretation and correlated syntactic properties. In particular, *wh*-words move to dedicated landing sites that are higher than those in standard questions.

The standard question projection in Bellunese is the *wh*-clitic phrase ‘Wh-CIP’ which is occupied by an empty *wh*-clitic element \emptyset , as demonstrated in (42a) (Poletto and Pollock 2004).¹³ However, when the *wh*-word moves to the left-periphery, the sentence can get different interpretations as special questions, depending on the precise landing site of the *wh*-element. Obenauer locates the *wh*-word in the Wh-SDQP (cf. 42b) that is higher than the standard *wh*-clitic Phrase; it is this higher functional projection that is responsible for the Surprise-Disapproval reading. The relevant order is: SDQP > Wh-CIP > IP.

- (42) *Bellunese* (North Eastern Italian Dialect): Obenauer (2006)
- a. [_{Wh-CIP} \emptyset [_{A-tu} *invidà* *chi*]]? *StQ*
 have-scl invited who
 ‘Whom have you invited?’
- b. [_{Wh-SDQP} *Chi*_{*j*} [_{Wh-CIP} \emptyset [_{à-tu} *invidà* *t_j*]]]?! *SDQ*
 whom have-scl invited
 ‘Whom have you invited?! (You should not have invited him!)’

The different types of special questions are defined based on pragmatic and semantic considerations. For instance, a rhetorical question is defined on the basis of its language function and of its polarity interpretation. In addition, Italian dialects provide us with clear syntactic distinctions among different sub-types of special questions. Obenauer (2006)’s work maps these different semantic interpretations onto different functional projections in the left periphery: Hanging Topic (HT) ... > wh_{RQ} > Left Dislocated Topic (LD) > wh_{SDQ} > wh_{CfvQ} > wh_{StQ}...

3.5.2. *Different types of special questions in Chinese*

3.5.2.1. *Rhetorical questions*

In Chinese, a rhetorical question does not require any overt movement of the relevant *wh*-words (Wu 1999). The rhetorical interpretation is related to a special intonation combined with sentence stress (Pan 2011). A question like (43) can be interpreted either as a standard information seeking question or as a rhetorical question under different prosodic patterns.

¹² I leave aside the familiar cases like “Can you pass me the salt?” which are currently interpreted as an indirect speech act.

¹³ Traditionally, (36a) is treated as a *wh*-in-situ sentence. However, Poletto and Pollock (2004) argue that the *wh*-word *chi* ‘who’ moves to a functional projection in the left periphery and the remnant of the IP, [_{IP} *À-tu invidà t_{WH}*], moves to an even higher position.

- (43) [RheQP Ø [TP *TA shénmeshìhòu hē-guò espresso*]] ?!
 he when drink-Exp espresso
 ‘When has he ever tasted espresso?! = He never tasted espresso!’
 (Stress on the subject *ta* ‘he’ and neutral intonation at the end of the sentence.)

3.5.2.2. Surprise-disapproval questions

Garzonio and Obenaumer (2008) observe that in many languages, Surprise-Disapproval question can be expressed by the counterpart of *what* and in this case, *what* occupies an adjunct position instead of its regular argument position. This special use of *what* is called *why-like what* since its interpretation is similar to that of *why*. However, *why-like what* also expresses a meaning that is equivalent to ‘you should not do such a thing!’

- (44) a. *Cosa ridi?!* (Northern Italian)
 what laugh
 ‘Why are you laughing? (you should not laugh!)’
 b. *Iché tu corri?!* (Florentine)
 what you run
 ‘Why are you running? (you should not run!)’
 (Garzonio and Obenauer 2008)

A Chinese example is given in (45) where *what* has a reading similar to *why* and *what for*. Such a question form expresses a strong attitude or opinion of the speaker: *you should not do*. A detailed analysis can be found in Pan (2014b) where *shénme* is analyzed as the head of SDQP and the verb raised to join it.

- (45) *Nǐ pǎo-shénme ?!*
 you run-what
 ‘What are you running for?! = You should not run!’

3.5.2.3. Negative wh-questions

Cheung (2008) and Tsai (2015) observe another type of special question that is called *Negative wh-question*. *Wh*-words like *shenme* ‘what’ and *nali* ‘where’ can be placed at the sentence initial position and give the sentence a strong negative reading. We suggest that the relevant *wh*-words are generated in the left periphery and occupy a special functional projection that is dedicated to this kind of special question, say, NegQP (cf. 46). One of the reviewer points out that these sentence initial *wh*-words receive a stress in negative questions.

- (46) a. [_{NegQP} *Shénme* [_{TP} *tā hē-guò Kǎbùqínuò*]] ?!
 what he drink-Exp cappuccino
 ‘It is not true that he tasted cappuccino!’
- b. [_{NegQP} *Nǎlǐ* [_{TP} *tā hē-guò Kǎbùqínuò*]] ?!
 where he drink-Exp cappuccino
 ‘It is not true that he tasted cappuccino!’

Nali ‘where’ can also be generated in the post-subject preverbal position that is a normal position for an adverb. In this case, a null operator \emptyset is generated in the NegQP that licenses the *wh*-word *where* and gives it the negative reading (Cheung 2008).

- (47) [NegQP Ø_j [TP *Tā nǎlǐ huì chàng Wǒ -de Tàiyang*]]?!
 he where can sing *O Sole Mio*
 ‘It is not true that he can sing *O Sole Mio*!’

These three types of special questions cannot co-exist in the same sentence; one single sentence can only be interpreted as one specific type of special question.

3.5.3. The relative ordering between SQP and other functional projections

In this section, I will examine the relevant order between different types of special questions (SQP) and other functional projections.

3.5.3.1. *SQP*, *S.AspP* and *OnlyP*

A) Neg *wh*-questions

Once we examine the interaction between the special questions just discussed and other functional projections, we encounter a difficulty. Take the negative *wh*-question for example. The *wh*-word *shenme* 'what' with the strong negative reading is generated in the NegQP that has a head-initial configuration; on the other hand, S.AsP and *Only*P have a head-final configuration. Word order can therefore not help us here to determine the relative hierarchy between the initial-initial projection and the head-final projection. One possible diagnostic test is based on the interpretation of the scope of the relevant functional projections. For instance, (48a) and (48b) are exactly the same sentence; however, the sentence can only have the structure and the interpretation indicated in (48a), where the negative quantifier scopes over the *only* focus. The interpretation indicated in (48b) with the *only* focus taking the widest scope is illicit. This result thus confirms that NegQP is syntactically higher than *Only*P.

- (48) a. NegQP > OnlyP > S.AspP
 [NegQP *Shénme* [OnlyP [S.AspP [TP *tā qù hē jiǔ*] [S.Asp° *láizhe*]] [Only° *éryī*]]] ...
 what he go drink alcohol RECENT.PAST ONLY
 ‘It is not true that he only went to drink alcohol! (He went to the casino too!)’
- b. * OnlyP > NegQP > S.AspP
 * [OnlyP [NegQP *Shénme* [S.AspP [TP *tā qù hē jiǔ*] [S.Asp° *láizhe*]]] [Only° *éryī*]] ...
 what he go drink alcohol RECENT.PAST ONLY
 (Intended meaning ‘It is only the case that he did not go to drink alcohol.’)

B) Rhetorical questions

The same observation holds for RheQP. The sentence in (49) can only be interpreted as a true rhetorical question where the *only* focus takes a narrow scope, as shown in (49a). In (49b) *only* focus scopes over the negative implication of the rhetorical question and the corresponding interpretation is illicit.

- (49) a. RheQP > *Only*P
 [RheQP Ø [*Only*P [TP *Sheí huì zhǐ chī kuài cān*] [*Only*° *éryǐ*]]] ...
 who would only eat fast-food ONLY
 ‘Who would only eat fast food?! (Nobody only eats fast food!)’
 b. * *Only*P > RheQP
 * [*Only*P [RheQP Ø [TP *Sheí huì zhǐ chī kuài cān*]] [*Only*° *éryǐ*]] ...
 who would only eat fast-food ONLY

(Intended meaning ‘It is only the case that nobody eats fast food.’)

The test with rhetorical questions also confirms that SQP are higher than *OnlyP*.

3.5.3.2. SQP and iForceP

However, it seems difficult to test the relevant order between iForceP and SQP in our system since they cannot co-occur in the same sentence. Recall that in the left periphery established in Tsai (2008, 2015) and Stepanov and Tsai (2008), ForceP is dedicated to the adverbial *wh*-words in a position higher than the standard question projection.

(50) ForceP (denial *how*) > IntP (causal *how*/reason *why*) > FinP > TP... (Tsai 2008)

As we have shown in the previous section, Tsai (2008) shows that *wh*-adverbials with normal question reading, such as the instrumental reading of *how*, are located at IntP and those with special question readings, such as the denial reading of *how*, are located at ForceP. ForceP is higher than the auxiliary and the IntP is lower than it (cf. 51), and therefore, ForceP is higher than IntP.

- (51) a. *Akiu kěyi zěnmē qù Táipei?*
Akiu can how go Taipei
‘How can Akiu go to Taipei?’ (Instrument)
- b. *Akiu zěnmē kěyi qù Táipei?*
Akiu how can go Taipei
‘How come Akiu could go to Taipei?’
=‘Akiu can’t/shouldn’t go to Taipei.’ (Denial)
(Tsai 2008)

The SQP in our system is very much like the ForceP in the system of Tsai in that both of them are the location for the special question readings.¹⁴ Let us also recall that Obenauer (2006)’s parameter for Italian dialects maps the special question readings onto the functional projections higher than the standard question projection based on the syntactic evidence. Tsai’s parameter for the left periphery in Chinese and Obenauer’s for Italian dialects make the same point that special question readings are relatively higher than the standard question reading. Therefore, we tentatively suggest that in our system, the SQP is syntactically higher than the iForceP. Semantically, we agree that in addition to the pure illocutionary force a special question expresses a strong subjective opinion and attitude of the speaker. As the reader will see in Section 3.5 where the attitude particles will be introduced, we will show that SQP is a transition stage between the projections that do not indicate any strong opinion or attitude of the speaker and those that are linked directly to the speaker’s subjective attitude.

¹⁴ We notice that the label “ForceP” is used differently by different authors. In Rizzi (1997), ForceP is used to replace CP to host standard question operators. Paul (2014, 2015) also use the label ForceP to host the sentence final root only particles related to clausal typing, such the *yes-no* question particle *ma*. Tsai (2008, 2011) uses IntP in a similar way to host standard question readings; however, Tsai uses ForceP to host special (i.e. non-standard) question readings. Therefore, IntP is very different from ForceP (in the sense of Rizzi and of Paul) in that IntP only hosts interrogatives but ForceP (for Rizzi and Paul) hosts not only interrogative but also other types of illocutionary related elements, such as imperatives. Furthermore, ForceP in Tsai’s system is very different from the ForceP in the systems of Rizzi and of Paul. In my system, I use iForce to spell out the “illocutionary force” and not only force related sentence final particles but also the null question operators can be generated there. SQP in my system is similar to ForceP in the system of Tsai.

3.5.4. *SQP and the embeddability test*

3.5.4.1. *Rhetorical questions*

In the previous section, we showed that illocutionary force, such as interrogative and imperative, can only be realized directly but not in embedded clauses. However, the interrogative and imperative forms have syntactic equivalents in embedded contexts; a fact which can be treated as a of syntactic embeddability phenomenon. The general observation is that among those elements that are located at iForceP, some can be embedded and some cannot. On the contrary, special questions cannot be expressed through an embedded clause, because they express a strong subjective opinion of the speaker and thus are speaker-oriented instead of subject-oriented. From this perspective, the prediction is that a special question cannot be embedded at all. (52) shows that we cannot have an embedded rhetorical question. Since a rhetorical question in Chinese has exactly the same syntactic form as an ordinary information seeking question, (52a) is in fact ambiguous between a rhetorical reading and a standard question reading. Only the corresponding prosodic forms can disambiguate them. When the question form in (52a) is embedded, as shown in (52b, c), it can only get an indirect question reading.¹⁵

- (52) a. [RheQP [TP *Tā shénmeshíhòu bāng-guò nǐ*]] ?!
 he when help-Exp you
 ‘When has he ever helped you ?! = He never helped you!’
- b. *Dàijiā dōu zhīdào* [RheQP [TP *tā shénmeshíhòu bāng-guò nǐ*]].
 everyone all know he when help-Exp you
 a. * (‘Everyone knows that he never helped you!’) (* Embedded rhetorical question)
 b. ‘Everyone knows when he helped you.’ (Indirect question)
- c. [RheQP [TP *Tā shénmeshíhòu bāng-guò nǐ*]] *bú zhòngyào*.
 he when help-Exp you Neg important
 a. * (‘That he never helped you is not important!’) (* Embedded rhetorical question)
 b. ‘When he helped you is not important.’ (Indirect question)

3.5.4.2. *SDQP*

In a similar way, a Surprise-Disapproval *why*-like *what* question is also excluded from embedded contexts, as shown in (53).

- (53) a. *Nǐ zǒu-shénme?*
 you leave-what
 ‘Why are you leaving?! = You should not leave!’
- b. * *Tā rènwéi* [SDQP *nǐ zǒu-shénme*].
 he think you leave-what
 (Intended meaning ‘He thinks that you should not leave.’)

3.5.4.3. *Neg wh-question*

(54) shows that a negative *wh*-question cannot be embedded either.

¹⁵ Even if we use the intonation that triggers the rhetorical question reading for the embedded question in (54b, c), the rhetorical reading does not obtain.

- (54) a. [NegQP *Shénme* [TP *tā huì shuō Xībānyáyǔ*]]?!
 what he can speak Spanish
 ‘It is not true that he can speak Spanish!’
- b. * *Dàjiā dōu zhīdào* [NegQP *shénme* [TP *tā huì shuō Xībānyáyǔ*]].
 Everyone all know what he can speak Spanish
 (Intended meaning ‘Everyone knows that he cannot speak Spanish!’)
- c. * [NegQP *Shénme* [TP *tā huì shuō Xībānyáyǔ*]] *de yáoyán shì zhēnde*.
 what he can speak Spanish DE rumor be true
 (Intended meaning ‘The rumor that he cannot speak Spanish is true!’)

3.5.5. Comparison

We suggested earlier that iForceP and SQP in our system, on the one hand, and IntP and ForceP in Tsai's (2008, 2015) system, on the other, share some common properties. Under the embeddability test, we find that the standard question reading located at IntP can still appear in an embedded clause even though it does not have the illocutionary force any more, as shown in (55).

- (55) a. *Wǒ bú zàihū [Akiu kěyi zěnmē qù Táipei].*
 I Neg care Akiu can how go Taipei
 'I don't care how Akiu goes to Taipei.' (Instrument)
- b. *[Akiu kěyi zěnmē qù Táipei] bú zhòngyào.*
 Akiu can how go Taipei Neg important
 'How Akiu goes to Taipei is not important.' (Instrument)

Zenme 'how' has the same instrumental reading in an embedded clause (cf. 55) as in a matrix clause (cf. 51a). However, the illocutionary force of *how* can only be expressed in a matrix clause but not in an embedded clause. From this perspective, IntP in the system of Tsai behaves in a similar fashion as iForceP in our system.

(56) shows that the denial reading of *zenme* ‘how’, which is located at ForceP in Tsai’s system, cannot exist in an embedded clause. The denial reading of *how* is similar to the rhetorical question reading. As a special question reading, the denial interpretation cannot be embedded. This shows that ForceP in Tsai’s system demonstrates the similar root property as SQP does in our system.

- (56) **[Akiu zěnme kěyǐ qù Táipei] bu zhongyao.*
 Akiu can how go Taipei not important
 (Intended meaning ‘That Akiu can’t/shouldn’t go to Taipei is not important.’)
 (Denial)

3.5.6. Conclusion

Special questions are linked directly to the speaker's attitude. The tests in this section seem to suggest that the speaker's attitude is hard to embed, and this can be viewed as a discourse constraint (rather than a syntactic one). Pragmatically, elements related to expressive forces, speaker's subjective opinion or attitude can only be carried out by direct speech. For instance, elements that attract the attention of the co-speaker, such as *hey*, *listen*, *look*, cannot appear in embedded clauses (cf. 57b). These words lost their original lexical meaning, and can only convey a pure pragmatic function:

- (57) a. *Look/listen/hey, I still have a paper to finish!*
 b. *The claim that [(look/listen/hey) I still have a paper to finish] is true.*

Since the pragmatic function of these words is drawing the co-speaker's attention to a particular point in the speech, this function can only be realized in a direct speech. Similarly, the subjective attitude conveyed in special questions can only be expressed in direct speech and therefore, indirect special questions do not exist. This result confirms what is generally observed in English and in other languages (cf. Section 2 above).

		<i>Syntactically embedded?</i>	<i>Pragmatically embedded?</i>	<i>Root phenomenon?</i>
<i>RheQ</i>	Rhetorical question	no	no	yes
<i>SDQ</i>	Surprise-Disapproval question (<i>why</i> -like <i>what</i> in Chinese)	no	no	yes
<i>NegQ</i>	Negative <i>wh</i> -question	no	no	yes

Table 4 Special questions in Chinese

3.6. *AttP (Speaker's attitude)*

In Italian, certain elements that express the speaker's attitude are argued to occupy the highest position in the CP layer (Del Gobbo, Munaro and Poletto 2009). Similarly, Haegeman (2014) proposes a speech act layer containing two different projections above ForceP for West-Flemish. Finally, Chinese also displays sentence final particles that can be used to express the speaker's attitude or subjective opinion. Paul (2014) treats them as particles realizing the head of the highest projection in the split CP, i.e. AttitudeP, a point of view adopted in the present study. This section examines some of these particles and their syntactic position in the left periphery and checks if they can appear in the embedded contexts.

3.6.1. *Sentence final particles*

Somewhat similar to Haegeman's proposal, the AttP postulated by Paul (2014) in fact can be further subdivided into two layers. The combination of *ne* (a particle of the first layer) and *ba* (a particle of the second layer) is possible, as demonstrated in detail further below in this section.¹⁶

- 1st layer (low): *ne*;
- 2nd layer (high): *a, ya, ou, ao, ai, ei, bei, na, ba*3.

I will begin by examining the internal hierarchy of these particles. The particle *ne* attracts the attention of the co-speaker in order to adjust the shared common ground during the conversation (Wu 2005). When the speaker assumes that the co-speaker does not have the same shared common ground and assumes that it is necessary to adjust this situation, the particle *ne* is used to draw the co-speaker's attention (i.e. to a new topic, an unusual event, a surprising piece of news). In English, elements like 'listen, ...' and 'look, ...' have a similar discourse function. For example,

¹⁶ A description of the use of the combination of [*ne ba*] can be found in Li (2006).

- (58) a. [AttP [TP *Tāmen xiǎng jiéhūn* [Att° *ne*]]!
 they want marry NE
 ‘Listen, they want to get married!’
- b. [AttP [TP *Xiǎowáng jūrán huì xiě shī* [Att° *ne*]]!
 Xiaowang even can write poem NE
 ‘Look, Xiaowang can even write poems!’

The particle *ba3* is used to express uncertainty (cf. 59).

- (59) a. [AttP [TP *Wàimiàn zài xià xuě* [Att° *ba3*]] !
 outside Prog drop snow BA3
 ‘Probably, (I guess that) it’s snowing outside!’

Ne can co-occur with *ba3* and the relevant order is *ne < ba3*.

- (60) a. [AttP1 [AttP2 [TP *Nà-ge shíhòu nǐ hái méi chūshēng* [Att2° *ne*]] [Att1° *ba3*]]!
 that-Cl moment you still Neg born NE BA3
 ‘Probably, you weren’t even born yet at that moment!’ (*ne < ba*)
- b. * *Nà-ge shíhòu nǐ hái méi chūshēng ba3 ne* !
 that-Cl moment you still Neg born BA3 NE
 (Intended meaning ‘Probably, you weren’t even born yet at that moment!’)
 (* *ba < ne*)
- (61) a. [AttP1 [AttP2 [TP *Xiǎowáng yě qù Fǎguó niàn shū* [Att2° *ne*]] [Att1° *ba3*]] !
 Xiaowang also go France study book NE BA3
 ‘Probably, Xiaowang went to study in France as well!’ (*ne < ba*)
- b. * *Xiǎowáng yě qù Fǎguó niàn shū ba3 ne* !
 Xiaowang also go France study book BA3 NE
 (Intended meaning ‘Probably, Xiaowang went to study in France as well!’)
 (* *ba < ne*)

We assume that *ne* and *ba* occupy different layers of the AttP and the hierarchy between them is fixed.

3.6.2. Order

Let us now turn to the interaction between the particles situated at AttP and other functional projections in the left periphery.

1) Sentential aspect + attitude

(62) shows that the common ground adjusting particle *ne* must scope over the sentential aspect particle *le*; syntactically, S.AspP cannot be higher than AttP.

- (62) a. [AttP [S.AspP [TP *Xià yǔ* [S.Asp° *le*]] [Att° *ne*]]! (AttP > S. AspP)
 drop rain INCHOATIVE NE
 ‘Look! It’s raining!’ (It wasn’t raining just now.)

- b. * *Xià yǔ ne le !* (* S.AspP > AttP)
 drop rain NE INCHOATIVE

The recent past particle *lái zhe* and the particle *ne* demonstrate the same scope effects.

(63) AttP > S. AspP

[AttP [S.AspP [TP *Tā gāngcái hái zài zhèlǐ* [S.Asp° *lái zhe*]] [Att° *ne*]]!
 he just.now still at here RECENT.PAST NE
 ‘Look, he was still here two seconds ago!’

The particle *a* is often used in exclamatives to express surprise. When the sentential aspect SFP *le* is followed by *a*, the sequence [*le a*] must be phonetically reduced as *la* (Zhu 1982). (64b) shows that the order [**a le*] is ungrammatical.

- (64) a. *Xià yǔ la!* = *Xià yǔ le a!* (*la* = *le* + *a*) (S.AspP < AttP)
 drop rain FUSION drop rain INCHOATIVE A
 ‘It is raining!’ (Zhu 1982)
- b. * *Xià yǔ a le!* (*AttP < S.AspP)
 drop rain A INCHOATIVE

2) Sentential *only* focus + attitude

When the sentential focus *only* SFP co-occurs with the attitude SFP, the first must be interpreted under the scope of the latter, and syntactically AttP is situated higher than *Only*P (cf. 65).

- (65) a. AttP > *Only*P > S.AspP
 [AttP [OnlyP [S.AspP [TP *Tā zhǐbúguò bú zài nà-ge*
 he no.more.than Neg at that-Cl
xuéxiào xué yīngwén] [S.Asp° *le*] [Only° *éryǐ*]] [Att° *a*]]...
 school study English INCHOATIF ONLY A
 ‘Oh, he only no longer studies English in that school, (but he is still studying English somewhere else!)’
- b. **Only*P > AttP > S.AspP
 * [OnlyP [AttP [S.AspP [TP *Tā zhǐbúguò bú zài nà-ge*
 he no.more.than Neg at that-Cl
xuéxiào xué yīngwén] [S.Asp° *le*] [Att° *a*]] [Only° *éryǐ*]] ...
 school study English INCHOATIF A ONLY
 (Intended meaning ‘He only (*oh!) no longer studies English in that school, (but he is still studying English somewhere else!)’)

3) Special Questions + attitude

The different types of special questions can all be marked by attitude SFPs, and syntactically, AttP is higher than SQP. For instance, when the particle *a* is placed at the end of the rhetorical question in (66) and at the end of the surprise-disapproval question in (67), it reinforces the rhetorical and the surprise-disapproval readings of the sentences and *a* directly expresses the speaker’s attitude.

(66) RheQP + attitude: AttP > RheQP

[_{AttP} [_{RheQP} [_{TP} *Sheí bù-xǐhuan chī tīlāmīsū*]] [_{Att°} *a*]]?!
 who dislike eat tiramisu A
 ‘Oh, who doesn’t like tiramisu?! = Everyone likes tiramisu!’

(67) SDQP + attitude: AttP > SDQP

[_{AttP} [_{SDP} *Nǐ* [_{SD°} *chī-shénme* [_{VP} *t_j* [_{V°} [_{V°} *t_i*] *nǎilào*]]]] [_{Att°} *a*]] ?
 you eat-what cheese A
 ‘Ah, why are you eating cheese?! = You should not eat cheese!’

When a negative *wh*-question is marked by the particle *a*, the only way to get the correct reading is to interpret the negative *wh*-words under the scope of *a*, as indicated in (68).

(68) NegQP + attitude

a. AttP > NegQP

[_{AttP} [_{NegP} *Shénme/nǎli* [_{TP} *tā huì shuō Yìdàlìyǔ*]] [_{Att°} *a*]]?!
 what / where he can speak Italian A
 ‘Oh, it is not true that he can speak Italian!’

b. *NegQP > AttP

* [_{NegP} *Shénme/nǎli* [_{AttP} [_{TP} *tā huì shuō Yìdàlìyǔ*]] [_{Att°} *a*]]?!
 what / where he can speak Italian A
 (Intended meaning ‘It is not true that [(*oh!*) he can speak Italian]!’)

3.6.3. Embeddability test

Since all of the attitude particles are discourse elements and they directly express the speaker’s strong subjective attitude or opinion, they can neither be embedded pragmatically nor syntactically, as illustrated by the following examples.

(69) a. *Tā wèn wǒ [Zhāngsān qù-le nǎ-ge guójiā (*a / *ne)] ?*
 he ask me Zhangsan go-Perf which-CI country A NE
 ‘He asked me which country Zhangsan went to.’

b. [*Zhāngsān zhǐ qù-guò Fǎguó (*a / *ba3 / *ne)*] *de*
 Zhangsan only go-Exp France A BA3 NE C
shuōfǎ bù kěxìn.
 claim Neg reliable
 ‘The claim that Zhangsan only went to France is not reliable.’

When *ne* appears in a sentence containing both a matrix clause and an embedded clause, *ne* can only have a matrix reading (cf. 70b).

(70) a. * *Zhāngsān gàosù wǒ [_{AttP} [_{TP} *tāmen xiǎng jiéhūn*] [_{Att°} *ne*]].*
 Zhangsan tell me they want marry NE
 (Intended meaning ‘Zhangsan told me that (**listen,*) they wanted to get married.’)
 (** ne* is embedded)

b. [_{AttP} [_{TP} *Zhāngsān gàosù wǒ [tāmen xiǎng jiéhūn]] [_{Att°} *ne*]]!
 Zhangsan tell me they want marry NE*

‘Listen, Zhangsan told me that they wanted to get married!’
(*ne* marks the matrix clause)

The contrast between (71a) and (71b) shows that *ba3* can only mark the matrix clause.

- (71) a. * *Tā rènwéi* [_{AttP} [_{TP} *wàimiàn zài xià xuě*] [_{Att°} *ba3*]].
 he think outside Prog drop snow BA3
 (Intended meaning ‘He thinks that it is probably snowing outside!’)
 (**ba3* is embedded)
- b. [_{AttP} [_{TP} *Tā rènwéi* [_{TP} *wàimiàn zài xià xuě*]] [_{Att°} *ba3*]].
 he think outside Prog drop snow BA3
 ‘Probably, he thinks that it is snowing outside!’ (*ba3* marks the matrix clause)

3.7. Summary

This section has examined five functional projections in the left periphery in Chinese, all of which are considered “core projections” in the sense of Rizzi (1997) and Boeckx (2008). The summary is given in Table 5.

Projection		Particle/ operators	Reading	Head	Root only
S.AspP (Sentential Aspect)		<i>láizhe</i>	Sentential recent past	final	no
		<i>le</i>	Sentential inchoative aspect	final	no
OnlyP		<i>éryǐ, bàle</i>	Sentential exclusive focus	final	no
iForceP (illocutionary force)		<i>ma</i>	Root <i>yes-no</i> question	final	yes
		<i>shǐfǒu</i>	Indirect <i>yes-no</i> question	initial	no
		<i>méiyǒu</i>	Perfective <i>yes-no</i> question	final	no
		<i>ba1</i>	Weak imperative	final	yes
		<i>ba2</i>	<i>Yes-no</i> question with weak certainty	final	yes
		<i>Q_{WH}</i> (null)	<i>Wh</i> -question operator	initial	no
SQP (special questions)		RheQP	Rhetorical Question	Initial	yes
		SDQP	Surprise-Disapproval Question	Initial	yes
		NegQP	Negative <i>wh</i> -Question	Initial	yes
AttitudeP (speaker’s attitude)	low layer	<i>ne</i>	Adjusting the sharing common ground	final	yes
	high layer	<i>a, ai, ao, ba3, bei, ei, na, ou, ya</i>	Attitude, subjective opinion ...	final	yes

Table 5 Summary of the core projections in the left periphery

The distribution shows that for the core projections in the periphery, the higher a projection is, the more subjective its interpretation is and the less likely it is to appear in embedded contexts. S.AspP and OnlyP are not linked directly to the speaker’s attitude; therefore, they can be embedded syntactically and pragmatically. As for the elements at iForceP, some of them can be embedded syntactically, and others cannot; however, none of them can be embedded pragmatically. SQP and AttP express the speaker’s opinion or attitude and therefore cannot be embedded, neither pragmatically nor syntactically.

We also notice that sentence final particles in Chinese are head-final, and they take the complement clause on their left. Some null operators like interrogative operator, special question operators are assumed head-initial.

4. TopP and FocP as optional projections

Previous work on topic and focus in Mandarin Chinese reveal the following orders:

- (recursive) TopP > *even* FocusP > TP... (Paul 2002, 2005).
- Aboutness Topic(ATP) > Hanging Topic (HTP) > Left-Dislocated Topic(LDP) > *even*FocusP (Badan 2007)

The conclusion that these previous studies reach is that TopP is higher than *lián* ‘even’ FocusP.

This section will argue for the following points: there are two different types of Foci: *even* Focus, and Cleft Focus. Cleft Focus is always higher than *even* Focus in Chinese. TopP and FocP are optional projections that appear freely between any of the two core projections. TopP is higher than FocP whenever they co-occur (Paul 2002, 2005, Pan 2014a). Both TopP and FocP can appear in embedded contexts.

- (i) *Foci contain not only even Focus but also Cleft Focus and Cleft Focus is higher than even Focus* (cf. 72) in Chinese.¹⁷ This is so because the copula *shì* ‘be’ in a cleft sentence is analyzed as a matrix T that takes the remainder of the sentence as complement (cf. Paul 2015:215-218). For instance, in (72a), the cleft focus NP *Mǎlì* is not in the left-periphery of the matrix clause headed by *shì* but in a peripheral position of the embedded TP. *Even* focus is also situated in the periphery of the embedded TP.

- (72) a. Cleft FocusP > *even* FocusP

[_{TP} *Shì* [_{Foc} *Mǎlì*, [_{even FocP} *lián zhōngguó rén* [_{dōu shuō tā de zhōngwén hǎo}]]]].
 be Mary even Chinese all say her Chinese good
 ‘It is Mary that even Chinese people say that her Chinese is good.’

- b. **even* FocusP > Cleft FocusP

* *Lián zhōngguó rén, shì Mǎlì, dōu shuō tā de zhōngwén hǎo.*
 even Chinese be Mary all say her Chinese good
 (Intended meaning *‘Even Chinese people_i, it is Mary that say _{t_i} that her Chinese is good.’)

- (ii) *TopP and FocP are optional projections that appear freely between any two core projections.*

1) S.AspP + TopP

- (73) a. TopP > S.AspP

[_{TopP} *Zhāngsān* [_{Top} [_{Top°} *a*] [_{S.AspP} [_{TP} *tā gāngcái dǎ diànhuà*] [_{S.Asp°} *láizhe*]]]].
 Zhangsan TM he just.now call phone RECENT.PAST
 ‘As for Zhangsan, he was calling just now.’

- b. S.AspP > TopP

¹⁷ Haegeman’s work on the left-periphery shows that in English, Cleft Focus is not the highest focus projection.

[S.AspP [TopP *Zhāngsān* [Top' [Top° *a*] [TP *tā gāngcái dǎ diànhuà*]] [S.Asp° *lái zhe*]].
 Zhangsan TM he just.now call phone RECENT.PAST
 ‘Just now, as for Zhangsan, he was calling.’

(73) shows that the topic phrase *Zhangsan* can be interpreted either within the scope of the recent past particle *lái zhe* (cf. 73b) or outside of it (cf. 73a). The same applies for the *shì* ‘be’ marked focus *it is Peking that* as shown in (74).

2) S.AspP + FocusP

(74) a. FocusP > S.AspP

[TP *Shì* [Foc *Běijīng* [S.AspP [TP *zuótiān xià dàxuě*] [S.Asp° *le*]]].
 be Peking yesterday fall big.snow RECENT.PAST
 ‘It was in Peking that it was snowing heavily yesterday.’

b. S.AspP > FocusP

[S.AspP [TP *Shì* [Foc *Běijīng* [TP *zuótiān xià dàxuě*]]] [S.Asp° *le*]].
 be Peking yesterday fall big.snow RECENT.PAST
 ‘(There is a new situation where) it was in Peking that it was snowing yesterday.’

It is somehow very difficult to reflect the scope differences in the relevant translation. For instance in (74b), ‘(There is a new situation where)’ is used to represent the state changing meaning of the particle *le* that takes the wide scope here.

3) S.AspP + iForceP + TopP

(75) shows that the topic phrase *Shanghai* can be interpreted either within or outside the scope of the *yes-no* question marker *ma*.

(75) a. iForceP > TopP > S.AspP

[iForceP [TopP *Shànghǎi* [Top' [Top° *ne*] [S.AspP [TP *nǐ yǐjīng*
 Shanghai TM you already
qù-guò t_j] [S.Asp° *le*]]]] [iForce° *ma*]]?
 go-Exp RECENT.PAST Q_{yes-no}
 ‘Is it the case that, as for Shanghai, you have been (there) before?’

b. TopP > iForceP > S.AspP

[TopP *Shànghǎi* [Top' [Top° *ne*] [iForceP [S.AspP [TP *nǐ yǐjīng*
 Shanghai TM you already
qù-guò t_j] [S.Asp° *le*]]]] [iForce° *ma*]]?
 go-Exp RECENT.PAST Q_{yes-no}
 ‘As for Shanghai, is it the case that you have been (there) before?’

4) SQP + TopP

When both Special question phrase and Attitude phrase occur in the same sentence, AttP must scope over the SQP. In the same sentence, when we insert the topic phrase, there are three different possibilities to interpret the topic. Either the topic gets a narrow scope (cf. 76a and 77a) or an intermediate scope (cf. 76b and 77b) or a wide scope (cf. 76c and 77c). The difference is very subtle among these three orders. Especially, for (76), I use “come on”

to render the semantics of the sentence final particle *a*, and “it is (not) the case” to render the semantics of the rhetorical question.¹⁸

(76) RheQP + AttP + TopP

a. AttP > RheQP > TopP

[AttP [RheQP [TopP *Tīlāmīsū*_j, [TP *shéi bù-xǐhuān chī t_j*]]] [Att° *a*]]?!
tiramisu who dislike eat A

‘Come on, as for tiramisu, who doesn’t like it?!’

= ‘Come on! It is the case that, as for tiramisu, everyone likes it!’

b. AttP > TopP > RheQP

[AttP [TopP *Tīlāmīsū*_j, [RheQP [TP *shéi bù-xǐhuān chī t_j*]]] [Att° *a*]]?!
tiramisu who dislike eat A

‘Come on! As for tiramisu, it is the case that everyone likes it!’

c. TopP > AttP > RheQP

[TopP *Tīlāmīsū*_j, [AttP [RheQP [TP *shéi bù-xǐhuān chī t_j*]]] [Att° *a*]]?!
tiramisu who dislike eat A

‘As for tiramisu, come on, it is the case that everyone likes it!’

(77) NegQP + AttP + TopP

a. AttP > NegQP > TopP

[AttP [NegQP *Shénme* [TopP *zhè-jīā yínháng*, [TP *fúwù hěn hǎo*]]] [Att° *a*]]?!
what this-Cl bank service very good A

‘It is not true, come on, for this bank, that the service is good!’

b. AttP > TopP > NegQP

[AttP [TopP *Zhè-jīā yínháng* [NegQP *shénme* [TP *fúwù hěn hǎo*]]] [Att° *a*]]?!
this-Cl bank what service very good A

‘Come on! As for this bank, it is not true that the service is good!’

c. TopP > AttP > NegQP

[TopP *Zhè-jīā yínháng*, [AttP [NegQP *shénme* [TP *fúwù hěn hǎo*]]] [Att° *a*]]?!
this-Cl bank what service very good A

‘As for this bank, come on, it is not true that the service is good!’

When TopP and FocP co-occur with AttP, topic must be placed higher than focus (cf. 78).

(78) a. AttP > TopP > FocusP

[AttP [TopP *Zuótiān* [Top° *ne*], [TP *shì* [Foc *nǐ -de tàidù*
yesterday TM be your attitude
[TP *gōngsī de lǎobǎn bù xīnshǎng*]]]] [Att° *ba3*]]!
company of boss Neg appreciate BA3

‘Probably, yesterday, it is your attitude that the boss of the company doesn’t appreciate!’

¹⁸ The translations for the examples in this section sound a bit odd because I am trying to convey the precise meaning and scope relation of the Chinese sentence rather than trying to find the most eloquent English equivalent.

b. TopP > AttP > FocusP

[_{TopP} *Zuótiān* [_{Top°} *ne*], [_{AttP} [_{TP} *shì* [_{Foc} *nǐ-de tàidù*
yesterday TM be your attitude
[_{TP} *gōngsī de lǎobǎn bù xīnshǎng*]]] [_{Att°} *ba3*]]!

company of boss Neg appreciate BA3
'Yesterday, probably, it is your attitude that the boss of the company doesn't appreciate!'

c. * AttP > FocusP > TopP

* *Shì nǐ-de tàidù, zuótiān ne,*
be your attitude yesterday TM
gōngsī de lǎobǎn bù xīnshǎng ba3!
company of boss Neg appreciate BA3

(*'Probably, it is your attitude that, yesterday, the boss of the company doesn't appreciate!')

(iii) *TopP* and *FocP* can be embedded, as shown in (79-80).

(79) *Wǒ rènwei* [_{TopP} *jièzhi* [_{Top°} *ne*], *hǎokàn jiù xíng*].

I think ring TM pretty then OK

'I think that as for rings, it is OK when they are pretty (not necessarily expensive!')

(80) [*Shì* [*nǐ-de tàidù, lǎobǎn hěn bù-xǐhuān*]]

be your attitude boss very dislike

de yáoyán chuánbiàn-le zhěnggè gōngsī !

DE rumor spread-Perf entire company

'The rumor that it is your attitude that the boss hates spread the whole company.'

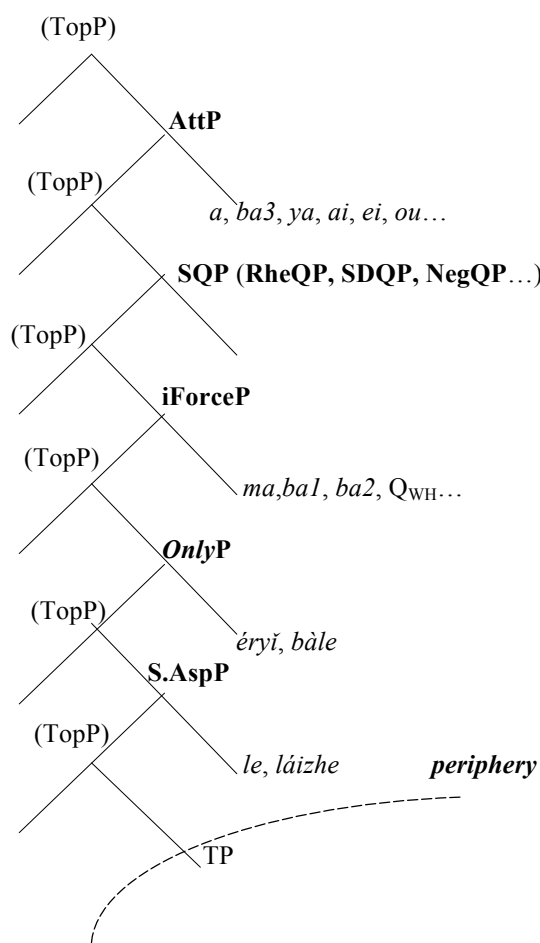
5. Conclusion

The hierarchy of the core functional projections established for the Chinese left periphery in this study is the following:

(81) (TP) < **S.AsP** < **OnlyP** < **iForceP** < **SQP** < **AttP2** < **AttP1**.

These projections host different particles, functional words or null operators. Topics and foci can intervene between any of the two core projections. The architecture of the left-periphery in Chinese is roughly presented as the following:

(82)



The hierarchy of these projections has been established on the basis of two kinds of tests: syntactic and semantic. When the compared projections are both head-final, the syntactic test is used since the fixed word order reflects the relevant hierarchy of the projections concerned. However, when one projection is head-final and the other head-initial, a semantic test is used, *viz.* the scope interaction between the two projections must be examined. In addition, another test based on the embeddability of these projections was used to support the hierarchy established. The result is given below:

Syntactically embedded?		yes	yes	no	no
Semantico-Pragmatically embedded?		yes	no	yes	no
Core projections	S.AspP	<i>láizhe, le</i>		*	
	OnlyP	<i>éryǐ, bàle</i>		*	
	iForceP		<i>shǐfǒu (embedded only) méiyǒu, Q_{WH}</i>	*	<i>ma, ba1, ba2</i>
	SQP			*	<i>RheQ, SDP, NegQP</i>
	AttP			*	<i>ne, a, ai, ao, ba3, bei, ei, na, ou, ya</i>
Optional projections	TopP	Topics			
	FocusP	Foci			

Table 6 Embeddability of the core and optional projections

Two different types of embeddability are examined. Syntactic embeddability is used to check whether an element can appear syntactically in an embedded clause. For instance, the discourse attitude particles can never occur in an embedded clause; therefore, they cannot be embedded syntactically. On the contrary, sentential aspect elements and *only* focus can be embedded syntactically. Semantico-pragmatic embeddability serves to check whether an embedded element has exactly the same interpretation or the same pragmatic function in an embedded clause as in a matrix clause. For instance, sentential aspect SFPs like *le* (inchoative) and *lǎizhe* (recent past) have the same interpretation in an embedded clause and in a matrix clause and are therefore they are considered as elements that can be semantically/pragmatically embedded. A perfective *yes-no* question marker *méiyǒu* ‘have not’ can appear in an embedded clause to construct an indirect *yes-no* question; however, it does not have the same interpretation in an embedded question as in a root question. A root question is different from an indirect question in that a root question bears an illocutionary force. Since an illocutionary force cannot be embedded, the *yes-no* question force of *méiyǒu* can only be realized in a root question but not in an embedded question. As a result, *méiyǒu* can only be embedded syntactically but not semantically. In a general way, the discourse particles that express the speaker’s subjective attitude or opinion cannot be embedded semantically or pragmatically either and these elements are a root phenomenon. Being optional projections, Topics and Foci can be freely embedded both syntactically and pragmatically.

The present study confirms that with respect to the core projections in the left-periphery, the higher a projection is, the more subjective its interpretation is and less likely it is to be embedded. S.AspP and *Only*P are not linked to the speaker’s attitude; accordingly, they can be embedded syntactically and semantically/pragmatically. As for the elements at iForceP, some of them can be embedded syntactically, while others cannot; none of them can be embedded pragmatically. SQP and AttP strongly express the speaker’s opinion and attitude and therefore, they cannot be embedded pragmatically or syntactically. The embeddability test is another indirect argument in favor of the hierarchy of the functional projections proposed here. The degree of difficulty for a functional element to be embedded is correlated with the relevant height of the functional projection that holds such an element. From this perspective, this study confirms the core proposal of the truncation analysis of Main Clause Phenomenon in Haegeman (2012a, b).

This study also confirms several important points revealed in previous work on the left-periphery of Chinese, in particular the hierarchies established by Paul (2014, 2015) and by Tsai (2008, 2015).

- (a) (TP) < Clow (*lǎizhe*, *le* etc.) < Force (*ma*, *ba* etc.) < Attitude (*a* etc.)
(Paul 2014, 2015)
- (b) ForceP (denial *how*) > IntP (causal *how*/reason *why*) > FinP > TP...
(Tsai 2008, 2015)

As argued for extensively in this study, the three layers proposed by Paul can even be further decomposed into two different functional projections whose order is fixed, thus leading to an even more fine-grained picture. Special questions are situated higher than illocutionary forces, which echoes the order proposed by Tsai (2008, 2015) who claims that the denial reading (i.e. special question reading) of certain *wh*-elements is higher than the their normal interrogative reading. Our study also provides an explanation of this hierarchy by specifying that the logic of discourse requires that speaker-oriented elements are placed higher than subject-oriented elements. The inter-relationship between “being higher in the tree” – “having a more subjective meaning” – “less likely to be embedded” is also established.

References:

- Aoun, Joseph and Audrey Y.A Li. 1993. *Wh-Elements in Situ : Syntax or LF ?* *Linguistic Inquiry* 24.2.
- Austin, John L. 1962. *How to do things with words*. London: Oxford University Press
- Badan, Linda. 2007. *High and Low Periphery : A Comparison between Italian and Chinese*. PhD dissertation. Università degli Studi di Padova.
- Benincà, Paola and Cecilia Poletto. 2004. Topic, Focus and V2: Defining the CP sublayers. In Rizzi L. (ed.), *The Structure of CP and IP. The Cartography of Syntactic Structures*, vol. 2, New York-Oxford: Oxford University Press: 52-75.
- Boeckx, Cedric (2008). *Bare Syntax*. Oxford University Press.
- Cheng, Lisa, L.-S. 1991. *On the Typology of WH-Questions*. PhD dissertation. MIT.
- Cheung, Lawrence Y. L. 2008. *The Negative Wh-Construction*. PhD dissertation, UCLA.
- Chierchia, Gennaro and Sally McConnell-Ginet. 2000. *Meaning and Grammar: An Introduction to Semantics* (Second edition). MIT Press.
- Cinque, Guglielmo and Luigi Rizzi. 2008. *The Cartography of Syntactic Structures, STiL – Studies in Linguistics Vol. 2*, CISCL Working Papers
- Cinque, Guglielmo. 1999. *Adverbs and Functional Heads*. Oxford, New York: Oxford University Press.
- de Cat, Cécile. 2012. Towards an interface definition of root phenomena. In: Aelbrecht, Lobke, Liliane Haegeman and Rachel Nye (eds.), *Main Clause Phenomena: New Horizons* vi, 433 pp. (pp. 135–158)
- Del Gobbo, F., N. Munaro and C. Poletto. 2009. Sentential Particles and Special Questions. Handout given at *Les journées d'études* organized by the project "Types de phrases - cartographie et typologie" (Fed. Typologie et universaux linguistiques, CNRS), Paris, France.
- Emonds, Joseph. 1970. *Root and Structure-Preserving Transformations*. Doctoral Dissertation. MIT.
- Erlewine, Michael Yoshitaka. 2011. 'Sentence-Final *Only* and the Interpretation of Focus in Mandarin Chinese'. In Louis Liu, Lauren Eby (eds.), *Proceedings of IACL-18 and NACCL-22*.
- Garzonio, Jacopo and Hans Obenauer. 2009. 'Why-like' what and argumental what and the Florentine o-construction: a comparative view. Talk given at Syntax seminar, University of Siena, Italy, 2009.
- Garzonio, Jacopo. 2004. Interrogative Types and Left Periphery: some Data from the Fiorentino Dialect. In B. Patruno, C. Polo (eds.) *Quaderni di lavoro dell'ASIS* 4, 1-19.
- Gasde, Horst-Dieter and Waltraud Paul. 1996. Functional categories, topic prominence, and complex sentences in Mandarin Chinese. *Linguistics* 34, 2: 263 - 294.
- Green, Mitchell S. 2000. Illocutionary Force and Semantic Content. *Linguistics and Philosophy* 23: 435–473.
- Haegeman, Liliane. 2006. Conditionals, factives and the left periphery. *Lingua* 116(10). 1651-1669.
- Haegeman, Liliane. 2007. Operator movement and topicalisation in adverbial clauses. *Folia Linguistica* 41: 279-325.
- Haegeman, Liliane. 2010a. The internal syntax of adverbial clauses. *Lingua* 120 . 628-648.
- Haegeman, Liliane. 2010b. The internal syntax of adverbial clauses. In *Exploring the left periphery*, Kleantes Grohmann and Ianthi Tsimpli (eds). *Lingua* thematic issue, 120: 628-648.

- Haegeman, Liliane. 2011. The movement derivation of conditional clauses. *Linguistic Inquiry* 41: 595-621.
- Haegeman, Liliane. 2012a. *Adverbial clauses, main clause phenomena and the composition of the left periphery: the cartography of syntactic structures*. Oxford Studies in Comparative Syntax. 8.
- Haegeman, Liliane. 2012b. The syntax of MCP Deriving the truncation account. In: Aelbrecht, Lobke, Liliane Haegeman and Rachel Nye (eds.), *Main Clause Phenomena: New Horizons*: 113–134.
- Haegeman, Liliane. 2014. West Flemish verb-based discourse markers and the articulation of the speech act layer. *Studia Linguistica* 86, 1:116-139.
- Heycock, Caroline. 2006. Embedded root phenomena. In *The Blackwell Companion to Syntax* Henk Van Riemsdijk and Martin Everaert (eds), Vol II: 174-209. Oxford and Boston: Blackwell.
- Hooper, John and Sandra Thompson. 1973. On the applicability of Root Transformations. *Linguistic Inquiry* 4: 465-97.
- Krifka, Manfred. 2014. Embedding Illocutionary Acts. In Tom Roeper and Margaret Speas (ed.) *Recursion: Complexity in Cognition. Studies in Theoretical Psycholinguistics, Volume 43*: 59-87.
- Li, Boya. 2006. *Chinese Final Particles and the Syntax of the Periphery*, PhD dissertation, Leiden University.
- Li, Charles. N. & Thompson, Sandra. A. 1981. *Mandarin Chinese. A functional reference grammar*. Los Angeles: California University Press.
- Obenauer, Hans-Georg. 2006. Special Interrogatives - Left Periphery, *Wh*-Doubling, and (Apparently) Optional Elements. In J. Doetjes and P. Gonzalves, eds., *Romance Languages and Linguistic Theory 2004*, 247-273. Benjamins.
- Pan, Victor Junnan. 2011a. *Interrogatives et quantification en chinois mandarin: une approche générative*. Presses Universitaires de Rennes, Rennes.
- Pan, Victor Junnan. 2011b. ATB-topicalization in Mandarin Chinese : an Intersective Operator Analysis, *Linguistic Analysis*, Volume 37, p. 231-272.
- Pan, Victor Junnan. 2014a. *Wh-ex-situ in Chinese: Mapping Between Information Structure and Split CP*. *Linguistic Analysis*, Volume 39 (3-4), p. 371-413.
- Pan, Victor Junnan. 2014b. Deriving Special Questions in Mandarin Chinese: A Comparative Study. In Jong-Un Park & Il-Jae Lee (eds.), *2014 Comparative Syntax : Proceedings of The 16th Seoul International Conference on Generative Grammar*, The Korean Generative Grammar Circle, 349-368.
- Paul, Waltraud. 2002 Sentence-internal topics in Mandarin Chinese: the case of object preposing. *Language and Linguistics* 3, 4 : 695 - 714.
- Paul, Waltraud. 2005. Low IP area and left periphery in Mandarin Chinese. *Recherches linguistiques de Vincennes* 33 (2005) 111 -134.
- Paul, Waltraud. 2014. Why particles are not particular: Sentence-final particles in Chinese as heads of a split CP. *Studia Linguistica* 68,1: 77-115.
- Paul, Waltraud. 2015. *New Perspectives on Chinese Syntax*. Berlin: De Gruyter.
- Poletto, Cecilia and Jean-Yves Pollock (2004). On *wh*-clitics and *wh*-doubling in French and some North-Eastern Italian dialects. *Probus* 16, 241-272.
- Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery, Liliane Haegeman, ed., *Elements of Grammar*. Dordrecht: Kluwer, 281-337.
- Rizzi, Luigi. 2004. Locality and Left Periphery. In A. Belletti, ed., *Structures and Beyond. The Cartography of Syntactic Structures, vol.3*, New York: Oxford University Press.

- Searle, John R. 1975. A Taxonomy of Illocutionary Acts. In: Günderson, K. (ed.), *Language, Mind, and Knowledge*, (Minneapolis Studies in the Philosophy of Science, vol. 7), University of Minneapolis Press, p. 344-69.
- Stepanov, A. and Wei-Tien Tsai. 2008. Cartography and licensing of *wh*-adjuncts: a cross-linguistic perspective. *Natural Language and Linguistic Theory* 26.3, 589-638.
- Tang, Ting.-Chi. 1989. *Hanyu cifa jufa lunji* [Studies on Chinese Morphology and Syntax], vol. 2. Taipei: Student Book Co.
- Tsai, Wei-Tien Dylan. 1994. *On Economizing the Theory of A'-Dependencies*. PhD Dissertation, MIT.
- Tsai, Wei-Tien Dylan. 2008. Left Periphery and *How-Why* Alternations. *Journal of East Asian Linguistics* 17: 83-115.
- Tsai, Wei-Tien Dylan. 2011. Cong 'zhejuhua cong he shuo qi' shuo qi [On Atypical *Wh*-expressions in Chinese], *Yuwenxue luncong* [Contemporary Linguistics] Vol. 43, 194-208.
- Tsai, Wei-Tien Dylan. 2015. A Tale of Two Peripheries: Evidence from Chinese adverbials, light verbs, applicatives and object fronting. In Dylan W.-T. Tsai (eds.) *The Cartography of Chinese Syntax. The Cartography of Syntactic Structures, Volume 11*, Oxford University Press.
- Wu, Guo. 2005. The discourse function of the Chinese particle *ne* in statements. *Journal of the Chinese Language Teachers Association* 40.1 : 47-82.
- Wu, Jian-Xin. 1999. *Syntax and semantics of quantification in Chinese*, Doctoral Dissertation, University of Maryland at College Park.
- Zhu, Dexi. 1982. *Yufa jiangyi* [On grammar]. Shangwu yinshuguan [Commercial Press].