The two sides of Wh-indeterminates in Mandarin : a prosodic and processing account
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Chapter 1 General Introduction

Mandarin is a *wh*-in-situ language, in which *wh*-words remain at their base position just as their declarative counterparts do. Mandarin is also known to be a *wh*-indeterminate language, in which *wh*-words [1] such as *shénme*, can have an interrogative interpretation 'what' or a non-interrogative existential interpretation 'something'. Due to the *wh*-in-situ and *wh*-indeterminates nature of Mandarin, clausal typing (e.g. classify the clause as a *wh*-question) in Mandarin and the licensing of Mandarin *wh*-indeterminates have long been two intriguing topics. This dissertation investigates the clausal typing in Mandarin and the licensing of Mandarin *wh*-indeterminates, from the perspective of prosody and processing. In section 1.1, I briefly introduce what *wh*-in-situ questions, *wh*-indeterminates and clausal typing are, compare three *wh*-in-situ and *wh*-indeterminate languages and motivate why Mandarin *wh*-indeterminates require further investigations. In section 1.2, I present my research questions in this dissertation. In the final section, I conclude this chapter by providing an overview of the dissertation.

1.1 Background

1.1.1 An introduction to *wh*-in-situ, *wh*-indeterminates and clausal typing

Human languages are diversified on the surface. For instance, when asking a *wh*-question, most Indo-European languages (e.g. English) front their *wh*-words to the clause initial position while most East Asian languages (e.g. Mandarin) tend to keep the *wh*-words in their base position. This is a common typological distinction among languages based on the formation of *wh*-questions, with the former known to be *wh*-movement languages and the latter *wh*-in-situ languages (see Cheng, 1991, among others for a detailed discussion of the typology of *wh*-questions). Examples (1) and (2) illustrate the two types of *wh*-questions respectively.

(1) What$_i$ did John buy t$_i$?   [*wh*-movement]

(2) 张三　　　买了　　什么　　(呢)?   [*wh*-in-situ]
　　Zhāng Sān　mǎi-le　shénme　(ne[2])?
　　Zhang San　buy-PERF　what　(SFP)
　　'What did Zhang San buy?'

The distinction of *wh*-movement languages and *wh*-in-situ languages are based on the way *wh*-questions are formed. Looking at the interpretations of *wh*-words, there are languages that are known to be *wh*-indeterminate languages such as Japanese,

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[1] Unless specially mentioned, all the *wh*-words refer to arguments such as *what* and *who*, instead of adjuncts such as *why* and *how*. It should be noted that not all *wh*-words are *wh*-indeterminates, e.g., adjuncts such as *why*.
[2] The sentence final particle (SFP) *ne* is optional in Mandarin.

Korean, Mandarin and Vietnamese, in which *wh*-words can have both interrogative and non-interrogative interpretations (Kuroda, 1965; Huang, 1982; Nishigauchi, 1990; Cheng, 1991, 1994; Lin, 1998, 2014, among others). In these languages, *wh*-words have no inherent quantificational force and behave like variables (Cheng, 1991), whose interpretations are subject to licensing by (sentential) operators or licensors. Under different operators or licensors, *wh*-words can have interrogative, universal, existential or free choice interpretations[3]. Take Mandarin for example. As illustrated in (3a-b), a maximality operator (e.g. *dōu* 'all') can license the universal interpretation of the *wh*-word *shénme* 'everything' (see Giannakidou & Cheng, 2006; Xiang, 2008; Cheng, 2009 for the analysis of *dōu* as a maximality operator) and a nonveridical context[4] (like negation) can license the existential interpretation of the same *wh*-word *shénme* 'something/anything'. Henceforth, I refer to the *wh*-word as a *wh*-existential when it is interpreted as an existential as in (3b). For declaratives containing *wh*-existentials[5] like (3b), I refer to them as *wh*-declaratives, in order to distinguish them from regular declaratives.

(3) a. 张三　　　什么　　都　　买。　　　　　　　　　[universal]
　　　Zhāng Sān　shénme　dōu　mǎi.
　　　Zhang San　SHENME[6]　all　buy
　　　'Zhang San buys everything.'

　　b. 张三　　　不想　　买　什么。　　　　　　　　　[*wh*-existential]
　　　Zhāng Sān　bùxiǎng　mǎi　shénme.
　　　Zhang San　not want　buy　SHENME
　　　'Zhang San doesn't want to buy anything.'

As illustrated in (4), when there is no overt licensor, the sentence containing the same *wh*-word *shénme* is interpreted as a *wh*-question, with the *wh*-word licensed by the null interrogative operator (Q) at Spec-CP or C^0. Henceforth I refer to the *wh*-word as a *wh*-interrogative when it is interpreted as a question word as in (4). According to Tsai (1994, 1999), all the licensors/operators of Mandarin *wh*-words are merged at the CP level and hence a *wh*-interrogative can only be interpreted at the sentence level.

(4) (+Q) 张三　　　买了　　什么？　　　　　　　　　[*wh*-interrogative]
　　　　Zhāng Sān　mǎi-le　shénme?
　　　　Zhang San　buy-PERF　SHENME
　　　　'What did Zhang San buy?'

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[3] The free choices conditions are more complicated to be generalized, see Cheng and Giannakidou (2013) for the licensing details of free choice interpretations in Mandarin.

[4] We will briefly introduce nonveridical contexts in section 1.1.2. The definition and all the examples of "nonveridicality" will be given at length in chapter 4.

[5] *Wh*-existentials can also be licensed in non-declaratives contexts which will be introduced in example (7) but in this dissertation, we mainly focus on *wh*-existentials in declaratives for the ease of discussing clausal typing of questions and declaratives.

[6] From here on, I gloss *shénme* simply as SHENME, as it can have different interpretations.

One typical question concerning *wh*-in-situ languages is the question of how clausal typing is realized in these languages. According to the Clausal Typing Hypothesis by Cheng (1991: 29), "Every clause needs to be typed. In the case of typing a *wh*-question, either a *wh*-particle in C^0 is used or else fronting of a *wh*-word to the Spec of C^0 is used, thereby typing a clause through C^0 by spec-head agreement." Hence *wh*-movement languages such as English type their *wh*-questions by fronting their *wh*-words, while *wh*-in-situ languages realize that by utilizing a *wh*-particle. For instance, in Japanese the presence of *ka* at clause final position (e.g., C^0) can type a *wh*-question. However, this hypothesis requires further considerations. Taking Mandarin as an example, it is problematic to take the particle in *wh*-questions (*ne*, a type of SFP) to be a *wh*-particle: First, *ne* is optionally used in *wh*-questions; second, *ne* appears in matrix *wh*-questions but it does not appear in embedded *wh*-questions; third, in addition to *wh*-questions, *ne* is also used in A-not-A questions[7]; moreover, *ne* appears not only in questions, with a different prosody it can also appear in declaratives (Li, 2006; Constant, 2014). If *wh*-particles and the movement of *wh*-words are not present to type a *wh*-question, then how is clausal typing realized in a language like Mandarin?

Recent studies also show that sentence final particles and some specific intonation are in complementary distribution (Zhang, 2014; Tang, 2015; Wakefield, 2016), and a strong version of the relations between particles and intonation claims that intonation and sentence final particles are the same thing, just in different forms (Wakefield, 2016). Based on an analysis of the historical changes of Mandarin particles, tones and intonations, Feng (2015) proposes that Mandarin particles can be analyzed as a variant of intonation with the former being a segmental realization of the latter. If there is indeed such a correlation between sentence final particles and intonation, it indicates that intonation or prosody could potentially do the clausal typing for *wh*-questions. Although this line of analysis requires more empirical and theoretical support, it may shed light on an alternative analysis of clausal typing, namely, from the perspective of intonation/prosody. This is one of the aims of this dissertation, i.e., to investigate whether and how prosody types sentences containing *wh*-words (i.e. to differentiate questions from declaratives) when there is no *wh*-movement or particles.

Japanese, Korean and Mandarin are the three commonly discussed *wh*-in-situ and *wh*-indeterminate languages. Although in this dissertation I investigate the licensing and clausal typing of *wh*-indeterminates in Mandarin, with a focus on *wh*-interrogatives in questions and *wh*-existentials in declaratives, I briefly compare *wh*-interrogatives and *wh*-existentials in Japanese and Korean with that in Mandarin, through which I show that the case of Mandarin merits further investigations.

1.1.2 *Wh*-indeterminates in Japanese, Korean and Mandarin

Different from Mandarin, which bears a Subject-Verb-Object (SVO) word order and does not allow scrambling, both Japanese and Korean bear an SOV word order and

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[7] A-not-A question is a type of yes-no question in Mandarin (and other Chinese languages) offering a choice between an affirmative sentence and its negative counterpart.

allow the scrambling of *wh*-words. For the ease of comparisons with Mandarin, I focus on the unmarked word order of Japanese and Korean (SOV) instead of the scrambled version. I discuss the licensing of *wh*-interrogatives and *wh*-existentials in these two languages and the clausal typing of questions and declaratives containing them, as compared with Mandarin.

Japanese. As mentioned above, Japanese is also a *wh*-indeterminate language where *wh*-words can have interrogative or non-interrogative interpretations, depending on the particles (Kuroda, 1965; Nishigauchi, 1990). According to Tsai (1994, 1999), different from Mandarin in which *wh*-words can only be interpreted at the CP level, Japanese *wh*-words can be licensed at a lower level by particles and thus interpreted at the DP level. For instance, the *wh*-word *dare* has the existential interpretation of 'someone' when combined with particle *ka* as in *dare-ka*, as shown in (5a). Particles in Japanese can license the interpretations of *wh*-words as operators license variables (Cheng, 1991; Watanabe, 1992). When no other particles are used, a sentence-final *wh*-particle *no/ka* at Spec-CP or C^o can license the interrogative reading yielding a *wh*-question, as illustrated in (5b).

(5) a. Dare-ka-kara   henna tegami-ga todoi-ta.   [*wh*-existential]
        DARE-some-from strange letter-Nom arrived
        'A strange letter came from someone.'

   b. Dare-ga   ki-masu-ka?   [*wh*-interrogative]
        DARE-Nom come-Q
        'Who's coming?'

As for clausal typing, the use of *wh*-particles *ka/no*[8] sentence finally can already type *wh*-questions, according to Cheng (1991). Recent prosodic studies also demonstrate that *wh*-questions are marked with a post-*wh*-word lexical accents compression (Deguchi & Kitagawa, 2002; Ishihara, 2002, 2003; Kitagawa & Fodor, 2003, among others). A strong version based on the prosodic markings of *wh*-questions even claims that the post-*wh*-word compression not only marks the clause type but also allows Japanese *wh*-questions to have *wh*-in-situ. According to Richards (2010: 145), "languages try to create a prosodic structure for *wh*-questions in which the *wh*-phrase and the corresponding C^o (clausal-final particle *no/ka* in Japanese) are separated by as few prosodic boundaries as possible." Japanese creates this prosodic structure through the post-*wh*-word compression (so that the *wh*-phrase and the corresponding C^o have few prosodic boundaries in between) and hence Japanese *wh*-questions can have *wh*-in-situ (Richards, 2010; 2016).

Korean. Similar to Japanese, Korean is also a *wh*-indeterminate language where the interpretations of *wh*-words largely depend on particles. For example, *wh*-word

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[8] The usage of *no/ka* in Japanese *wh*-questions is optional under some conditions (Yoshida & Yoshida, 1997). But the optionality of particles in Japanese appears to be more restricted than in Mandarin. Recently, it has been claimed that *no* has some pragmatic functions; for instance, its presence is associated with certain presuppositions (see Sudo, 2013). As the pragmatic usage of particles is not directly relevant to our study, we still describe the presence of particles *ka/no* at the clause-final as a way to identify questions in Japanese.

nwukwu has the existential interpretation of 'someone' when combined with particle *(i)nka* or *(i)nci* as in *nwukwu-(i)nka/(i)nci*, as illustrated in (6a). When no other particles are used, a sentence-final *wh*-particle *ni* at Spec-CP or C° can license the interrogative reading, as illustrated in (6b).

(6) a. Nwukwu-inka-ka   wass-ta.
     nwukwu-some-Nom came-Dec
     'Someone came.'

   b. Nwukwu-ka   wass-ni?
     nwukwu-Nom came-Q
     'Who came?'

As for clausal typing, particles can do the job but they are optionally used in Korean. Korean also utilizes prosody, especially pitch accent and prosodic phrasing to differentiate *wh*-questions and declaratives containing *wh*-words. Normally a *wh*-interrogative bears a high-pitch accent and a *wh*-existential bears a low-pitch accent; *wh*-questions are characterized by a post-*wh*-word de-phrasing, namely, a deletion of accentual phrasings following the *wh*-word (Jun & Oh, 1996; Shin, 2005; Yun, 2012).

    Although Japanese, Korean and Mandarin are all *wh*-indeterminate and *wh*-in-situ languages, the licensing of *wh*-indeterminates in Japanese and Korean in general depends on particles and the clausal typing of *wh*-questions relies on *wh*-particles or perhaps both *wh*-particles and prosody. As opposed to Japanese and Korean, the licensing of *wh*-indeterminates (*wh*-interrogatives and *wh*-existentials) and clausal typing in Mandarin are less straightforward. I will elaborate on it in two points.

    First, with respect to the licensing of *wh*-indeterminates, Mandarin has no particles like Japanese and Korean to license *wh*-indeterminates and the particle *ne* is optionally used in *wh*-questions. *Wh*-existentials have been proposed to be licensed by nonveridical contexts only, in which the truth of a proposition cannot be entailed in the sentence. Examples (7a-d) illustrate typical nonveridical contexts, containing nonveridical operators like negation, questions, conditionals and epistemic modalities (Li, 1992; Lin, 1998; Xie, 2007; Lin, Weerman & Zeijlstra, 2014; Huang, 2017).

(7) a. 张三　　　不想　　买　　什么。　　　　　　　　　[negation]
     Zhāng Sān bùxiǎng mǎi   shénme.
     Zhang San not want buy   SHENME
     'Zhang San doesn't want to buy anything.'

   b. 张三　　　买了　　什么　　吗？　　　　　　　　[yes-no question]
     Zhāng Sān mǎi-le   shénme ma?
     Zhang San buy-PERF SHENME yes-no particle
     'Did Zhang San buy anything?'

c. 如果　张三　　买了　　什么，　别　生气。　　　　　[conditionals]
　　Rúguǒ Zhāng Sān mǎi-le　　shénme, bié　shēngqì.
　　If　　Zhang San buy- PERF SHENME don't angry
　　'If Zhang San buys something, please don't be angry at him.'

d. 可能　　张三　　　要去 买　什么。　　　　　　　　[epistemic modality]
　　Kěnéng Zhāng Sān yàoqù mǎi shénme.
　　Possibly Zhang San go　　buy SHENME
　　'Possibly, Zhang San goes to buy something.'

Nevertheless, we observe that counter-examples also exist in which *wh*-existentials are licensed in veridical contexts. For instance, sentences in (8), which contain an adverb *zúotiān* ('yesterday') and a perfective maker *le* are typical veridical contexts, whose truth value is already ascertained. Yet the *wh*-word *shénme* can still have an existential interpretation. This observation challenges the general assumption in previous studies that *wh*-existentials are licensed in nonveridical contexts only (Lin, 1998; Xie, 2007; Lin et al., 2014; Huang, 2017), showing that the existing licensing conditions of Mandarin *wh*-existentials need to be revised.

(8) a. 张三　　　昨天　　买了　　点儿 什么　　　　　[veridical context]
　　Zhāng Sān zúotiān　mǎi-le　diǎnr shénme
　　Zhang San yesterday buy-PERF a.little SHENME
　　'Zhang San bought a little of something yesterday.' or
　　'What did Zhang San buy (a little of) yesterday? '

b. 李四 昨天　　买了　　个 什么　　　　　　　　[veridical context]
　　Lǐ Sì zúotiān　　mǎi-le　gè shénme
　　Li Si　yesterday buy-PERF CL SHENME
　　'Li Si bought something yesterday. ' or
　　'What did Li Si buy yesterday? '

Second, with respect to clausal typing, Mandarin has neither *wh*-movement nor reliable *wh*-particles to type the *wh*-question. Furthermore, even if Mandarin can potentially utilize prosody to type clauses (as discussed in section 1.1.1), it cannot use the same post-*wh*-word lexical accent/accent phrase compression as in Japanese and Korean to disambiguate *wh*-questions from *wh*-declaratives, as Mandarin is a tone language with no lexical accent or accent phrase. It hence raises an additional point concerning clausal typing based on prosody. In particular, if prosody can do clausal typing in Mandarin, is there a specific clausal typing region in the sentence (pre-*wh*-word region, *wh*-word itself, post-*wh*-word region) or is the whole sentence marked with distinctive prosody? Both Korean and Japanese report that *wh*-questions are marked with a lexical accent/accent phrase compression in the post-*wh*-word region. But it remains unknown whether it is only the prosodic marking in the post-*wh*-word region or *wh*-word itself that can mark the clause type. Furthermore, different from Korean and Japanese which are SOV languages, Mandarin is SVO and when the question word is an object, the post-object or post-

wh-region is in fact very limited (see Huang, 1984 for the details). The longer pre-*wh*-word region in Mandarin as opposed to Korean and Japanese raises the question of whether the pre-*wh*-word region also plays a role in clausal typing, especially from the perspective of perception. In other words, whether listeners can identify the clause types in the pre-*wh*-word region based on prosody would be interesting to investigate. Taken together, different from Korean and Japanese in which the post-*wh*-word regions are often the focus for investigation, in Mandarin, it will be insightful to also investigate the prosodic markings of the pre-*wh*-word regions in *wh*-questions and *wh*-declaratives, for a better understanding and a complete picture of clausal typing in Mandarin.

In short, the clausal typing in Mandarin based on prosody needs to be thoroughly investigated, especially in the pre-*wh*-word region. Further investigations are also required to explore the detailed constraints and evidence in the licensing of *wh*-indeterminates in Mandarin, through for instance, investigating the cases where *wh*-existentials are licensed in *wh*-declaratives of veridical contexts.

1.2 Research questions

This dissertation addresses two general research questions each consisting of several subresearch questions. I will first present the general research questions and then elaborate on them at length.

(9) General research questions:

Q1: What kind of clausal typing mechanism(s) can we find in Mandarin?
Q2: How are *wh*-interrogatives and *wh*-existentials licensed in Mandarin?

Research question Q1 originates from the rethinking of traditional clausal typing hypothesis (Cheng, 1991): if Mandarin cannot use *wh*-movement or particles to type clauses, can prosody function as a clausal typing mechanism? I will address Q1 by investigating the prosodic markings of *wh*-questions and *wh*-declaratives, testing listeners' identification of the two clause types and seeking possible neurocognitive evidence for clausal typing based on prosody (i.e. electrophysiological evidence). Hence Q1 can be divided into three subresearch questions.

(10) Subresearch questions of Q1:

q1: Can *wh*-questions be differentiated from *wh*-declaratives through prosody? And if so, how?
q2: Can listeners make use of prosody to recognize the clause type or even anticipate the clause type?
q3: What neural correlates can we find for clausal typing based on prosody?

Subresearch question q1 in (10) aims to understand the role prosody plays in clausal typing by offering a detailed prosodic analysis on the first-hand audio recordings of *wh*-questions and *wh*-declaratives. Subresearch question q2 goes further to investigate the role of prosody in clausal typing from the perspective of perception,

namely, whether listeners can detect and anticipate clause types using prosody. Subresearch question q3 aims to build on neurocognitive evidence during real-time language processing for an accurate understanding of the prosodic clausal typing in Mandarin.

Research question Q2 concerns the licensing of Mandarin *wh*-existentials and *wh*-interrogatives, which are the two most frequently used interpretations of *wh*-indeterminates in Mandarin. I can address question Q2 by addressing two subquestions.

(11) Subresearch questions of Q2:

q1: What detailed licensing constraints and evidence can we find in the licensing of *wh*-existentials?
q2: What processing evidence can we find in the licensing of *wh*-interrogatives?

Subresearch question q1 in (11) originates from the fact that Mandarin *wh*-existentials are argued to be licensed only by nonveridical operators (Lin, 1998; Xie, 2007; Lin et al., 2014; Huang, 2017) though counter-examples also exist. We aim to discuss the licensing environments of *wh*-existentials by investigating the counter-examples. Subresearch question q2 can be addressed based on the evidence of online reading, through which we aim to find evidence for the covert dependency and licensing between the *wh*-interrogative and the interrogative operator (Q) at Spec-CP or C^o.

1.3 Overview of the chapters

This dissertation is organized as follows. Chapters 2, 3 and 6 focus on the clausal typing mechanism of *wh*-questions and *wh*-declaratives based on prosody. Chapters 4 and 5 focus on the licensing of *wh*-interrogatives and *wh*-existentials respectively. Below I introduce these chapters in this sequence.

Chapter 2 reports a production study on *wh*-questions and *wh*-declaratives, which are string identical. By analyzing the acoustic data, we come to understand how prosody is utilized to mark each clause type throughout the sentence, in particular in the pre-*wh*-word region. This chapter directly answers the subquestion q1 under the general question Q1.

Based on the results of the production experiment in Chapter 2, Chapter 3 reports an audio-perception and an audio-gating study (Grosjean, 1980). The perception study specially investigates whether listeners can differentiate the two clause types, *wh*-questions and *wh*-declaratives respectively, by completing a dialogue based on their identification of the *wh*-questions or *wh*-declaratives. Instead of a whole sentence as in the perception study, the audio-gating study segments the audios of *wh*-questions or *wh*-declaratives into several fragments, i.e., gates, and it specially tests whether listeners can anticipate clause types before hearing the *wh*-word and if yes, at which part of the sentence or at which gate can the anticipation happen. This chapter directly answers subquestion q2 under the general question Q1.

The perception and gating studies in Chapter 3 are offline studies that help to demonstrate the role of prosody on clause type identification and anticipation. With

respect to the role of prosody in clausal typing during online sentence processing, I seek the direct evidence and neural correlates by conducting two auditory ERP (Event-Related Potentials) studies reported in Chapter 6. These two auditory ERP studies examine *wh*-questions and *wh*-declaratives preceded by contexts biasing each clause type and their manipulated conditions. Experiment 1 tests *wh*-questions and *wh*-declaratives and their cross-spliced conditions. Audios of *wh*-questions and *wh*-declaratives are cross-spliced from the onset of *wh*-words onwards, in other words, the *wh*-word and the following constituents from a *wh*-question audio are spliced and combined to the pre-*wh*-word constituents of a *wh*-declarative audio, and vice-versa. It investigates the electrophysiological evidence of clausal typing incongruity. To be specific, when listeners expect a question word, as predicted by the context and the prosody of the pre-*wh*-word region (Q), they hear a *wh*-existential from the *wh*-declarative (D) instead (with a different prosodic marking as compared with the expected one), leading to an incongruent clause type (Q-D). By the same token, when they expect a *wh*-existential from the *wh*-declarative, they hear a *wh*-interrogative from the *wh*-question instead (D-Q). Experiment 2 manipulates the congruity between the contexts participants hear biasing *wh*-questions/*wh*-declaratives and the critical sentences of *wh*-questions/*wh*-declaratives participants hear. It investigates whether we can find neural correlates for detecting the early clausal typing incongruity based on prosody already at the subject position of *wh*-questions/*wh*-declaratives. The two ERP results directly address subquestion q3 under the general question Q1.

Chapter 4 offers a theoretical discussion on the licensing environments of *wh*-existentials based on empirical evidence, by focusing on *wh*-declaratives containing *diǎnr* 'a little' and its licensing on *wh*-existentials in veridical contexts. This chapter challenges the assumption that the licensing of *wh*-existentials is restricted in nonveridical contexts (Lin, 1998; Xie, 2007; Huang, 2017) and discusses the role of *diǎnr* in licensing *wh*-existentials as well as its detailed constraints in the licensing. Chapter 4 directly answers subquestion q1 under general question Q2.

Chapter 5 investigates the covert licensing of *wh*-interrogatives by conducting online-reading studies through word-by-word self-paced reading paradigm (Just, Carpenter & Wooley, 1982), which closely resembles natural reading. Different from the other chapters that utilize prosody, this chapter collects pure processing evidence in *wh*-questions as compared with declaratives with indefinite noun phrase (e.g. 'a classmate'). The working hypothesis is as follows. If processing a *wh*-question requires the construction of a covert dependency between the *wh*-phrase and the interrogative operator (Q) at Spec-CP or C^o, the processing cost in *wh*-questions is thus higher than that in declaratives. Chapter 5 addresses subquestion q2 under general question Q2.

Finally, Chapter 7 concludes the dissertation and summarizes the answers to the research questions posed in this chapter. Since the clausal typing mechanism of Mandarin *wh*-questions and *wh*-declaratives is based on prosody, I extend the traditional clausal typing hypothesis of *wh*-questions (Cheng, 1991) by integrating prosody into it. Furthermore, I summarize the discussions of how *wh*-interrogatives and *wh*-existentials are licensed in Mandarin based on all the investigations, as well as its implications for the licensing mechanism of *wh*-indeterminates cross-linguistically.