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## Contradiction, Why-Questions and Complex Islands in Chinese

# Contradiction, Why-Questions and Complex NP Islands in Chinese

Dawei Jin\*

## 1 Introduction

This paper proposes that the complex NP island effects (henceforth: CNPC) in Chinese *wh*-interrogatives receive a semantic explanation. I argue that the mainstream treatments of Chinese CNPC in terms of movement constraints fail to address the interpretational distinctiveness associated with different *wh*-phrases. On the other hand, island facts follow naturally from an independently motivated constraint on relative clause's propositional content, motivated by this distinctiveness.

The rest of this paper will be structured as follows: Section 2 reviews a standard assumption that motivates syntactic-based theory of CNPC in Chinese and other *wh*-in situ languages, namely there exists a fundamental argument-adjunct asymmetry; I show that positing such an asymmetry is not empirically sound and instead argues that the real underlying differences of island-inducing abilities in *wh*-in situ languages should be reduced to the different semantics between reason adverbial *why* on one hand and other *wh*-phrases on the other. Section 3 goes on to discuss the idiosyncratic semantics of reason adverbial *why*; Section 4 proposes a crucial semantic requirement in the interpretation of *wh*-phrases within relative clauses. I show that CNPC effects arise when the semantics of *why* is necessarily incompatible with this semantic requirement for embedded *wh*-phrases, thus always creating contradiction; Section 5 concludes the paper.

## 2 Rethinking the Argument-Adjunct Asymmetry

### 2.1 Previous Theories

Chinese *in situ wh*-questions have been standardly claimed to obey the complex NP constraint (Huang 1982, Huang et al. 2009). This is supported by examples such as the following: Numbered examples can be formatted like the following sentences. Leave a blank line above and below a block of examples, but do not leave extra space between examples.<sup>1</sup>

- (1) \*Ni xihuan [ta weishenme xie \_] de shu?  
You like he why write REL book  
#‘Why<sub>i</sub> do you like the books that he wrote \_<sub>i</sub>?’

This infelicity, according to Huang, is reminiscent of the canonical island effects in English, illustrated as below.

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<sup>1</sup> These *wh*-phrases also obviate other strong island constraints, for example, adjunct islands and subject islands, illustrated as follows

- (i) a. Ta [yinweishenme jiegu yuangong] yihou bei laoban piping=le?  
He because.of what sack employees after by boss criticize=ASP  
‘For what reason<sub>i</sub> was he criticized by the boss after he sacked employees \_<sub>i</sub>?’  
b. [Ta yinweishenme cizhi] zui hao?  
He because.of what resign be.most good  
‘For what reason<sub>i</sub> will that he resigned \_<sub>i</sub> be the best?’

These phenomena can follow from the analysis laid out in this paper. However, I will leave their exact formulation to future work.

- (2) a. \*Who do you like the man [who talked to \_]?  
 b. \*Who did you feel satisfied [after John talked to \_]?  
 c. \*Who would [for John to talk to \_] be nice?

This surface similarity prompts Huang to propose that Chinese *in situ wh*-questions are subject to the same island constraints as in English. Since the *wh*-elements stay *in situ*, some parallelism needs to be posited between *in situ* and overt *wh*-interrogatives for (1) to be violations of island constraints. This parallelism has been handled by positing covert movement of *in situ wh*-elements, purported to take place at the LF level (Huang 1982, Tsai 1994, Lasnik and Saito, 1984).

One central issue in formulating this constraint is to guarantee that it applies selectively, because island sensitivity in Chinese depends on the choice of *wh*-phrases, illustrated by the contrast in (3a-b).

- (3) a. Ni xihuan [shei xie] de shu?  
*You like who write REL book*  
 ‘Who<sub>i</sub> do you like the book(s) that (s)he<sub>i</sub> wrote?’  
 b. Ni xihuan [ta yinwei shenme xie] de shu?  
*You like he because.of what write REL book*  
 ‘Which reason<sub>i</sub> do you like the book(s) that he wrote for that reason<sub>i</sub>?’

The standard approach to this selectivity is to posit that *wh*-phrases can be licensed by a non-movement mechanism. In particular, unselective binding (Pesetsky 1987, Reinhart 1998) has been proposed to license argumental *wh*-phrases in the island-immune cases. In a nutshell, certain *in situ wh*-phrases are argued to not carry their quantificational force inherently, but function as variables to be bound by a separate interrogative operator (Tsai 1994). This operator merges directly in the matrix scope position and thereby exempts the *wh*-phrases from moving. On the contrary, in English single *wh*-question, the operator-variable binding process, necessary for establishing quantificational force, is claimed to be built up within the morphological component of *wh*-phrases, before they enter the syntactic derivation. As a result, the interrogative operator needs to move across island domains in order to reach the matrix position.<sup>2</sup>

A natural solution for the island-inducing behavior of the adjunct phrase *weishenme* ‘why’, given the above assumption, would be that *weishenme* itself cannot function as a variable, thereby not being bound by an external operator (Tsai 1994).<sup>3</sup>

One way to derive the difference between *weishenme* and other *wh*-phrases is to let the interrogative operator quantify over a choice function, which applies to a non-empty nominal set and picks out an individual from the set. According to Reinhart, non-nominal *wh*-adverbials differ from nominal *wh*-adjuncts (*i.e.* adjuncts that take nominal *wh*-phrases as arguments) in that the former do not have an individualizable, referential nominal set. This difference explains the contrast in (4), which Reinhart argues involves an argument-adverbial (or nominal-nominal) asymmetry (Reinhart 1998: 42).

- (4) a. \*Who fainted when you behaved how?  
 b. Who fainted when you behaved what way?

By the same token, choice function interpretation can be incorporated within a unselective binding

<sup>2</sup> *Wh*-phrases are already quantificational and pied-piped to the scope position as a whole (Tsai, 2008:86). In Chomsky (1995), the bundle of formal features of a *wh*-phrase is attracted to C at LF. Thus, (6) needs to be understood as a LF-constraint on *wh*-feature movement rather than *wh*-phrasal movement (see Pesetsky, 2000 for implications). For presentation purposes, however, this paper abstracts away from the distinction between feature and phrasal movement.

<sup>3</sup> However, theories based on this mechanism are different from Huang’s (1982) original proposal in that covert movement is no longer a requisite operation. Specifically, the failure to receive unselective binding does not logically entail covert movement, since the fact that *weishenme* cannot be bound by an external operator, by itself, suffices to disallow its embedding in island domains. Indeed, this explanation is exactly what Reinhart (1998) pursued.

approach to Chinese strong islands (Tsai 2008, Stepanov and Tsai 2008). Accordingly, the distinction between reason *wh*-adverbial *weishenme* and nominal *wh*-adjunct *yinweishenme* ‘because of what’ w.r.t. island behaviors, illustrated in (3) (repeated below), can be explained in the same way as the above manner distinction in (4).

- (5) a. \*Ni xihuan [ta weishenme xie\_] de shu?  
*You like he why write REL book*  
 ‘Why<sub>i</sub> do you like the book(s) that he wrote \_i?’  
 b. Ni xihuan [ta yinwei shenme xie\_] de shu?  
*You like he because.of what write REL book*  
 ‘Which reason<sub>i</sub> do you like the book(s) that he wrote for \_i?’

In other words, the distinction in (5) comes down to the claim that *yinweishenme*, but not *weishenme*, can be restricted via a choice function.

## 2.2 Problems with Previous Approaches

This predicts that *wh*-arguments, as well as adjuncts that take nominal *wh*-arguments contrast with non-nominal *wh*-adverbials in terms of island behaviors (Fujii and Takata 2007). However, this generalization is empirically problematic.

As (6) illustrates, temporal and place *wh*-adverbials are island-free (Cheng, 2009), just like *wh*-arguments/adjuncts. Furthermore, judgments for degree/manner *wh*-adverbials can also be ameliorated, because readings can be found where they denote sets of degrees/manners (Bayer 2006).

- (6) a. Ni xihuan [ta shenmeshihou xie] de shu?  
*You like he when write REL book*  
 ‘When<sub>i</sub> do you need the book(s) that he wrote at that time<sub>i</sub>?’  
 b. Ni xuyao [na’er neng mai-dao] de shu?  
*You need where can buy-RES REL book*  
 ‘Where<sub>i</sub> do you need the book(s) that one can buy at that place<sub>i</sub>?’  
 c. Ni hui mai [mai duoshaoqian] de shu?  
*You will buy sell how.much REL book*  
 ‘How much<sub>i</sub> will you buy the book(s) that was sold for that amount of money<sub>i</sub>?’

Contrarily, embedding reason *wh*-adverbial *weishenme* with a relative clause is never interpretable. It thus seems that the purported argument-adverbial asymmetry is only apparent.

In light of this, we need to conclude that Reinhart’s formulation, or any variants of it, is not tailor-made to the empirical picture of *in situ* CNPC islands. What is needed is not finding a natural class that partitions *wh*-adjuncts, but a theory that explains the unique phenomenon of *weishenme*-induced uninterpretability.<sup>4</sup>

<sup>4</sup> Another related proposal (Tsai, 2008) points out that the argument-adjunct asymmetry is sensitive to the internal structure within the *wh*-phrases. *Yinweishenme* is morphologically transparent. It contains the morphologically decomposable *wh*-argument *shenme* ‘what’. *Weishenme* is argued to be opaque. This argument is hardly convincing to me. Note *weishenme* can receive the morpheme-by-morpheme gloss of ‘for-what’. Tsai contends that this compositionality is only apparent, and simply grammaticalized, when compared with the phrasal *weileshenme*, which takes an aspectual marker *-le* and is therefore truly compositional. If this argument holds, we can similarly argue that manner phrase and degree phrase are all opaque and grammaticalized. For example, *duogui* ‘how-expensive’ is used to question price. An answer in the form of *XX-gui* is impossible.

- (i) a. Ni xiang mai [\_ mai duo-gui] de shu?  
*You want buy sell how-expensive REL book*  
 ‘How much<sub>i</sub> do you want to buy books that sells \_i?’  
 b. Sanshi-kuai qian. / \*Sanshi-kuai-gui. / \*Sanshi-kuai qian gui.  
*Thirty-CLF money./ Thirty-CLF-expensive./ Thirty-CLF money expensive.*

Below I present an alternative solution, which focuses on the idiosyncratic semantics of *why*. Independently, *why* has long been attested to exhibit idiosyncratic behaviors that differ from other *wh*-adverbials (Bromberger 1992, Szabolcsi and Zwarts 1993, Hintikka and Halonen 1995).

The rest of this paper will investigate how this idiosyncrasy contributes to the attested interpretation failure. Below I first examine the semantic aspect of *why* in more detail.

### 3 Semantics of Why

The semantics of *why*-adverbial has long been noticed to be peculiar crosslinguistically (Bromberger, 1992; Szabolcsi & Zwarts, 1997). Recent literature has presented various treatments for reason *why*'s idiosyncrasy. For example, Tomioka notes the divergent presupposition triggering pattern of *why* compared to other *wh*-phrases in downward entailing environment as follows:

- |   |   |
|---|---|
| (7) a. What reason did no one leave for?<br>⇒ There is a reason that no one left for.<br>⇒ No one left. | b. Why did no one leave?<br>⇒ No one left.<br>⇒ There is a reason that no one left for. |
|---|---|

There is clear evidence that when *why* stays *in situ*, it behaves the same, as the Japanese example shows (Tomioka 2009):

- (8) a.?? Daremo doo yuu riyuu-de ko-nak-atta-no?  
*Anyone for what reason-OBL come-NEG-PAST-Q*  
'For what reason<sub>i</sub> did no one come \_i?'
- b. Daremo naze ko-nak-atta-no?  
*Anyone why come-NEG-PAST-Q*  
'Why did no one come?'

That is, when in Japanese *naze* 'why' is replaced by *dooyuu riyuu* 'for what reason', a different reading arises.

Importantly, other *wh*-adverbials than *why*, such as *for what reason*, pattern with *wh*-arguments here:

- (9) What did no one buy?  
⇒ There is something that no one bought.  
⇒ No one was buying anything.

Tomioka (2009) thus argues that the reading difference between *why* and other *wh*-phrases is due to *why*'s own pragmatic peculiarity. In a *why*-question and only in a *why*-question, the proposition that corresponds to the non-*wh*-portion of the question must be presupposed.

Syntactically, this is compatible with Ko (2005) and Tsai (2008)'s proposals that *why* favors high attachment or late insertion. Ko (2005) proposes that *why* is initially merged at [Spec,CP] directly. Tsai (2008) suggests that this high scope-taking *why* (e.g. *weishenme* in Chinese) takes the underlying event as its internal argument and functions as a sentential operator; On the other hand, *for what reason* (e.g. *yinweishenme* in Chinese) modifies the underlying predicate and functions as a VP modifier (i.e. a derived predicate in the manner of VP-adverbials).

I argue this formulation can readily account for the differing interpretations elicited by the two *wh*-phrases.

For example, although the semantic distinction of *weishenme/yinwei shenme* does not yield logically distinct interpretations when a singular event is predicated of, when a multiple event reading is elicited through the introduction of a quantifier, different interpretations arise.

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Therefore, this morphological explanation still fails to address the issue of what causes *why*, but not others, to induce island effects.

- (10) a. Weishenme meiyouren/henshaoren cizhi?  
*Why nobody/few person resign*  
 ‘Why nobody/few people resigned?’
- b. Meiyouren/henshaoren yinwei shenme cizhi?  
*Nobody/few people because.of what resign*  
 ‘What reasons; did nobody/few people have for resigning \_i?’

Generalized quantifiers like *nobody/few* need to quantify over properties/predicates. Based on the semantic difference we get above, quantifiers can only take *yinweishenme* as argument, whereas *weishenme* ranges above the entire quantified event as its argument, accounting for the distinction between (10a-b).

Thus when we adopt a strictly compositional semantic derivation by interacting reason *wh*-phrases with other constituents, the resulting logical interpretations will differ. This, I argue, underlies the CNPC island effects in Chinese.

## 4 Complex NP Islands as Contradiction

### 4.1 Feature Propagation and Indefiniteness Effect

To begin with, interpretation of a clause containing a *wh*-phrase requires the propagation of the interrogative feature (Fiengo et al, 1988; von Stechow, 1996).

For example, Fiengo et al (1988) observes that when a interrogative quantificational NP is contained within another NP, as in *pictures of who*, the embedded NP may also be construed as a quantificational NP (QNP). This is so, because just as *who* is a quantifier ranging over individuals, *pictures of who* may be construed as a quantifier ranging over pictures sets defined by their owners. This propagation requirement entails that a definite reading for *picture* is impossible. In all sentences containing *picture of who*, it can’t be the case that we know the referent of a particular picture from prior discourse and use the phrase to ask who is the owner of such picture.

The same anti-definiteness effect applies to *wh*-relatives. Chinese has no definite determiners. If a bare NP heads a relative, its reference is ambiguous between generic and definite readings, to be determined by context (Simpson et al, 2011). For example, in (11), the use of overt demonstrative *nei-ben* ‘that-CLF’ is optional. If context establishes that there is only one book written for the discussed reason, a definite reading will arise regardless of the demonstrative’s presence.

- (11) [Ta yinwei zhe-ge yuanyin xie] de (nei-ben) shu  
*He because.of this-CLF reason write REL (that-CLF) book*  
 ‘That book that he wrote because of this reason’

Therefore, when a *wh*-relative is embedded in a complex NP with a bare head noun, a definite reading cannot be *a priori* ruled out for logical reasons. However, we find that in all *wh*-relatives with bare heads, the alternative reading for the head noun is the only reading available.

For example, in (12)

- (12) Ni xihuan [shei xie] de shu?  
*You like who write REL book*  
 ‘Who is the person s.t. you like book(s) that (s)he wrote?’

The embedded *wh*-argument *shei* ‘*who*’ denotes a salient set of individuals who have written books, and by inquiring after the set of individuals the question serves as a request to pick out one individual so that any books that bear the property of being written by this individual are liked.

A definite reading, where the set of books are already salient from context, is not available. That is to say, the identity of the books cannot be known *a priori*, but has to crucially rely on anchoring the identity of the individual who writes them.

Similarly, in (13), a set of alternative sets of books are characterized in terms of a set of

discourse-salient reasons as follows

- (13) Ni xihuan [ta yinwei shenme xie] de shu?  
*You like he because.of what write REL book*  
 ‘What is the reason s.t. you like the book(s) that he wrote for that reason?’

For example, imagine we have a context where a book A was written for reason  $R_1$ , a book B was written for reason  $R_2$ , etc. The *wh*-relative in (13) would then pick out the set of books  $\{A, B, \dots\}$ , which are defined in terms of the set of reasons  $\{R_1, R_2, \dots\}$ , represented as follows:

- (14) {book(s) A was written because of reason  $r_1$ , book(s) B was written because of reason  $r_2$ , etc.}

In this case, a definite reading - in which the referents of books are known *a priori*, and in which the speaker asks for the reason causing that particular book-writing event - is not available.

Furthermore, a demonstrative cannot co-occur with the *wh*-adjunct *yinweishenme*. The sentence in the following is minimally different from (14) by the appending of demonstrative *neiben* to the bare head, but it is unacceptable.<sup>5</sup>

- (15) \*Ni xihuan [ta yinwei shenme xie] de nei-ben shu?  
*You like he because.of what write REL DEM-CLF book*  
 \*‘Which reason<sub>i</sub> do you like that book that he wrote because of that reason<sub>i</sub>?’

The presence of a demonstrative indicates that the discourse referent of the head noun is uniquely identifiable. Consequently, a definite reading is forced, which is incompatible with the requirement of feature percolation.

#### 4.2 Deriving CNPC Effects

On the other hand, embedded reason adverbial *weishenme* cannot lend itself to such an interpretation, because a *weishenme*-question necessarily solicits the cause of a particular event which is denoted by the propositional argument that *weishenme* takes.

Since *weishenme* ranges over a set of possible reasons for an underlying event, the *wh*-relative in (16) denotes a set of propositions as in (17):

- (16) \*Ni xihuan [ta weishenme xie \_] de shu?  
*You like he why write REL book*  
 #‘Why<sub>i</sub> do you like the books that he wrote \_<sub>i</sub>?’
- (17) {reason  $r_1$  CAUSES the event  $e$ , reason  $r_2$  CAUSES the event  $e$ , ... }  
 (where  $e$  stands for an event of book-writing, and  $R\{r_1, r_2, \dots\}$  are contextually salient reasons that might explain the occurrence of  $e$ ).

Crucially, all reasons take a common underlying event. These propositions are statements about multiple possible reasons for the same event, not multiple events classified by different reasons. Therefore, regardless of which reason is the actual explanation for the book writing event, the same event remains unchanged, and so is the book, which is the participant of this unique event.

Since the underlying event of *weishenme* is presupposed, the only possible reading is a definite one, i.e. there exists a reason that causes his writing a particular book that the addressee likes, and we are wondering what this reason is. Therefore, the discourse referent of the head noun is not anchored by the relative clause, it must be known *a priori*, and by locating this referent, we are retrieving the reason for this particular event. However, this reading is independently ruled out by the anti-definiteness effect, hence we are arriving at a logical contradiction.

<sup>5</sup> One can possibly accept this sentence in a reprise reading: where the *wh*-word serves as anaphora that refers to a previously pronounced linguistic entity in the previous discourse.



## 5 Conclusion

This paper argues that putative CNPC islands in Chinese follow from semantico-pragmatic mechanisms. Previous theories for the Chinese CNPC fail to take account of the fact that the inherently different lexical semantics associated with reason adverbials gives rise to different interpretation compared with other *wh*-phrases. Once this distinction is made, we can see that the semantic interpretation differences underlie the judgment contrasts. I show this solution can be easily accommodated once the semantic idiosyncrasies of reason adverbial is taken care of.

This makes for a simpler grammar: there is no need to propose structural constraints on *in situ wh*-questions. Also, the removal of structural stipulations renders void the grounds for positing covert movement at the LF level. Licensing mechanisms used in *wh*-interrogatives need not be sensitive to the syntactic category of interrogative phrases.

It also carries implications on island theory in general. *In situ* island effects have been assumed to follow a treatment on a par with overtly displaced island effects in structural approaches. If this assumption is taken, theories that rely on overt displacement data for explaining the island effects cannot be extended to *in situ* cases, thus having an empirical disadvantage (Lasnik, 1999; Sprouse et al, 2012; Boeckx, 2012). For example, in processing-based theories, overt displacement is crucial because the dependency it creates is argued to impose heavy burden on the processing resources of an agent (Deane, 1991; Kluender, 1998; Hofmeister & Sag, 2010). If Chinese island effects are due to the same reason as islands in fronting languages, they would not be predicted in a processing approach. Thus, although the current claim doesn't in principle serve to favor nonstructural theories over structural ones in terms of overt displacement, it does enable a level playing ground by rendering the evidence from *in situ* islands irrelevant.

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