Rethinking *Wh*-island Effects in Chinese

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Abstract

The traditional observation that Chinese *wh*-arguments do not exhibit *wh*-island effects may be only apparent. With new evidence from “how-many” phrases, it is demonstrated that Chinese has *wh*-island effects even with *wh*-arguments. What nullifies such effects is in fact the disguise of D-linkedness. Although the lack of *wh*-island effects seems to pattern Chinese *wh*-construals with Japanese ones, further tests show that these two languages are still different with respect to strong island effects, (anti-)crossing effects, and multiple *wh*-interpretations. The finding leads to the need to reinvestigate the mechanisms underlying the scope-taking *wh*-elements of *wh*-in-situ languages on the one hand, and those triggering *wh*-island effects on the other.

Keywords

wh-island effect, D-linking, *how-many*, *wh*-in-situ, strong island effect

1 Introduction

It has long been observed that while Japanese exhibits *wh*-island effects, Chinese does not, although both are *wh*-in-situ languages. Consider (1)–(3). In Japanese, the *wh*-arguments *nani* ‘what’ or *dare* ‘who’ cannot take the matrix scope in *wh*-island constructions and the sentences are ungrammatical in (1), whereas similar Chinese counterparts in (2) and (3) are claimed to be much better. This distinction between Japanese and Chinese has given rise to different approaches to how *wh*-phrases take scope in these languages. For instance, while Japanese may employ a certain movement mechanism (Nishigauchi 1986, Nishigauchi 1990; Watanabe 1992), Chinese employs a non-movement one (Aoun and Li 1993; Tsai 1994; Reinhart 1997).

- (1) a. *Kimi-wa [watasitati-ga nani-o doko-de katta ka] oboete-iru no?
 you-TOP we-NOM what-ACC where-at bought Q remember Q
 (lit.) ‘What do you remember where we bought ____?’
 b. *Kimi-wa [dare-ga kuru ka(dooka)] siritai no?
 you-TOP who-NOM come whether want.to.know Q
 (lit.) ‘Who do you wonder whether ____ will come?’
- (2) a. ??/Ni xiang-zhidao [Lisi weishenme mai-le shenme] ne?
 you want-know Lisi why buy-PERF what Q
 (lit.) ‘What do you wonder [why Lisi bought ____]?’
 (Huang 1982: 526)
 b. ??/Ni xiang-zhidao [shei weishenme cizhi] ne?
 you want-know who why resign Q
 (lit.) ‘Who do you wonder [why ____ resigned]?’
 (Tsai 1994: 150)
- (3) ??/Ni xiangzhidao shei mai-le shenme?
 you want.know who buy-PERF what
 (lit.) ‘What do you wonder who bought ____?’

One may notice that the above judgment of the Chinese examples is not stable. They are judged to be grammatical by Huang (1982) and Tsai (1994), but similar constructions, i.e., *wh*-islands, are suggested to be controversial according to the judgment of Lin (2014) (see Lin 2014 for an overview on the controversy over data in Huang 1982 and the references therein; see also Tang 1988). We, therefore, mark the sentences with “??/” to indicate that the judgment may vary. As will be argued later, what causes the controversy is the disguise of D(iscourse)-linkedness. Specifically, the sentences are judged to be acceptable when the *wh*-arguments in question are D-linked. Take (2a) as an illustration. The sentence is felicitous if both the speaker and the hearer have a specific set of items in mind. For example, *Lisi*’s birthday is coming. His parents list several items for him to pick as birthday presents. The wife brings him to a shopping mall to buy one. Later, the husband is curious about the result. His wife says (2a). In (2b), a company employee is curious about why some of his colleagues in the same department have recently resigned. His partner seems to know everything. The employee mentions his concern

to his partner. His partner utters (2b). Likewise, in (3), when taking the matrix scope, either “who” or “what” must be D-linked so as to be judged grammatical. Turning to (4), one will find that the D-linking remedy becomes transparent when the *wh*-arguments are replaced with D-linked ones. They can readily escape the *wh*-island effects.¹

- (4) a. Ni xiang-zhidao [Lisi weishenme mai-le na-ge-dongxi]?
 you want-know Lisi why buy-PERF which-CL-thing
 (lit.) ‘Which thing do you wonder [why Lisi bought ____]?’
 b. Ni xiang-zhidao [na-ge-ren weishenme cizhi] ne?
 you want-know which-CL-person why resign Q
 (lit.) ‘Which person do you wonder why ____ resigned?’

The above observation is not novel since it is also true in other languages such as English. In (5a) *what* cannot escape a *wh*-island construction whereas in (5b) the D-linked *which book* can (Pesetsky 1987). This leads us to the “referential”-vs.-“non-referential” contrast as Cinque (1990) observed. That is, D-linking plays a crucial part in nullifying the *wh*-island effects (Pesetsky 1987, cf. Cresti 1995).

- (5) a. *What do you remember [where we bought *t*]?
 b. Which book do you remember [where we bought *t*]?

In this study, it will be demonstrated that with new evidence from argumental “how-many” phrases which are exclusively non-D-linked in Chinese questions, the traditional observation that Chinese lacks *wh*-island effects should be reconsidered. The remainder of this paper is organized as follows. Section 2 “‘How-many’ phrase and (non-)referentiality” contends that, with evidence from “how-many” phrases, the *wh*-island effects for Chinese *wh*-arguments should still exist. The reason why the *wh*-island effects are not observed can be attributed to the disguise of D-linkedness. Section 3 “Strong island and pied-piping” shows that although such a new observation seems to pattern Chinese *wh*-in-situ construal with the Japanese one, they are still different with respect to strong island effects. Section 4 “(Anti-)crossing and multiple *wh*-interpretations” provides two further tests, (anti-)crossing and multiple *wh*-interpretations, showing that these two languages are different. Section 5 “Theoretical implications” provides some theoretical implications following the demonstrations in this study, which should have a direct bearing on either the scope-taking mechanisms underlying in-situ *wh*-arguments or the conditions triggering *wh*-island effects. Section 6 “Concluding remarks” concludes the study.

1 A reviewer wonders if we can replace “why” with “whether” in the Chinese examples since “why” in Chinese is ambiguous between the nominal-encoded reading and the genuine adverb reading (Tsai 1994) and the former may be D-linked under proper context. For one thing, we would like to keep the original example in (2) quoted from previous researches. For another, there is no real *wh*-counterpart of “whether” in Chinese. A similar one is *shi-fou* ‘yes-no’ or *shi-bu-shi* ‘yes-no-yes’, either of which is not the typical *wh*-item. We, therefore, abandon the use of “whether” if possible. See also footnote 4 for the ambiguity of “why” in Chinese.

2 “How-many” phrase and (non-)referentiality

In English a “how-many” question can yield either the “identity” reading or the “number” reading depending on the answer (Longobardi 1987; Cinque 1990; Cresti 1995; Lahiri 2002; Miyagawa 2004). The identity reading asks for the identity of each individual as (6a) suggests, while the number reading asks for the number of individuals as in (6b). Interestingly, when put to a *wh*-island, the “how-many” phrase can only yield the identity reading. In other words, the number reading is filtered out by the *wh*-island (Cresti 1995) (marked as infelicitous with “#”).

- (6) Q: How many people should I talk to?
 a. A: You should talk to Bill, Jenny, and Tom. (Identity reading)
 b. A: Three. (Number reading)
- (7) Q: How many people do you wonder whether I should talk to?
 a. A: You should talk to Bill, Jenny, and Tom. (Identity reading)
 b. A: #Three. (#Number reading)
 (adapted from Cresti 1995)

In Chinese a typical “how-many” word is *duoshao* ‘how.many’ as in (8). It has no countable-uncountable distinction. To compose a *wh*-phrase, it takes a sequence of an optional classifier and a head noun as demonstrated in (9). Very interestingly, the whole sequence is exclusively number-denoting as (9b) shows.^{2,3}

- (8) Ta chi-le duoshao?
 he eat-PERF how.many
 ‘How much did he eat?’

2 Note that the *duoshao* ‘how-many’ phrase in Chinese can denote the seemingly “identity” reading in the following sense:

(i) Nide dianhua haoma shi duoshao?
 your phone number is how.many
 ‘What is your telephone number?’

In this sense, *duoshao* is more like ‘what’ rather than ‘how-many/much’. Such an identity denoting *duoshao* can be D-linked and escape *wh*-islands:

(ii) Ni xiangzhidao [Zhangsan weishenme ba mubiao dingzai duoshao]?
 you wonder Zhangsan why BA goal set what
 (lit.) ‘*What is the goal do you wonder why Zhangsan set ____.’

However, such a *duoshao* is a special case since its translation is ‘what’ instead of ‘how-many’. If it is ‘what’ that is at issue here, the identity reading or the D-linked reading becomes a natural consequence. As for how *duoshao* turns into ‘what’, it is beyond the scope of this paper. I will leave it for further studies.

3 One may wonder whether a specific set of numbers that a speaker has in mind can serve as “D-linked”. If that is the case, all the number-denoting examples can be D-linked and, therefore, escape *wh*-island effects. Even so, this does not falsify our claim that the non-D-linked reading is ruled out in the *wh*-island constructions. Meanwhile, we still cannot ignore the fact that the identity-denoting reading is also ruled out in the *wh*-island constructions. We, therefore, will stick to the dichotomy between the number reading and the identity reading for the “how-many” phrases.

- (9) Q: Ta mai-le duoshao(-ben)-shu?
 he buy-PERF how.many-CL-book
 ‘How many books did he buy?’
 a. A: # “*The Sword in the Stone, Aladdin, and The Hundred and One Dalmatians.*” (#Identity reading)
 b. A: San-ben-(shu). (Number reading)
 three-CL-book
 ‘Three (books).’

An alternative way to derive a “how-many” phrase is to make use of the indefinite *ji* ‘several’, followed by a sequence of a classifier and a head noun. When occurring in an assertive clause in (10), the *ji* ‘several’ phrase yields an indefinite reading. When occurring in questions as in (11), it is interpreted as an interrogative “how-many” phrase. Let us concentrate on the interrogative usage. Again, the *ji*-phrase is exclusively number-denoting in interrogative clauses as (11b) indicates.

- (10) Wo mai ji-ben-shu.
 I buy several-CL-book
 ‘I bought several books.’
 (11) Q: Ni mai-le ji-ben-shu ne?
 you buy-PERF several-CL-book Q
 ‘How many books did you buy?’
 a. A: # “*The Sword in the Stone, Aladdin, and The Hundred and One Dalmatians.*” (#Identity reading)
 b. A: San-ben-(shu). (Number reading)
 three-CL-book
 ‘Three (books).’

To derive the identity reading, a D-linking marker *na* ‘which’, as in (12), must be added, and the felicitous answer turns out to be the other way around, i.e., identity-denoting. Note that *duoshao* ‘how.many’ is a *wh*-word and cannot be further modified by another *wh*-word *na* ‘which’. *Ji* ‘several’, however, can be an indefinite. Therefore, it can be further modified by the D-linking marker *na* ‘which’ and, as expected, it exclusively yields the D-linked, identity reading in (12).

- (12) Q: Ni mai-le na-ji-ben-shu ne?
 you buy-PERF which-several-CL-book Q
 ‘Which books have you bought?’
 a. A: “*The Sword in the Stone, Aladdin, and The Hundred and One Dalmatians.*” (Identity reading)
 b. A: #San-ben-(shu). (#Number reading)
 three-CL-book
 ‘Three (books).’

Now, with the above demonstration that Chinese “how-many” phrases are exclusively non-D-linked and number-denoting, we are ready to test our claim.

Recall that this study claims that Chinese *wh*-arguments are sensitive to *wh*-island effects and the reason why speakers are not aware of them is attributed to the disguise of D-linkedness. It follows that with the exclusively non-D-linked “how-many” phrases, it becomes easy to test whether they exhibit *wh*-island effects.

- (13) a. *Ni xiang-zhidao [Lisi weishenme mai-le {duoshao, ji} -ben-shu] ne?
 you want-know Lisi why buy-PERF how.many several-CL-book Q
 (lit.) ‘How many books do you wonder [why Lisi bought ____]?’
 b. *Ni xiang-zhidao [{duoshao, ji} -ge-ren weishenme
 you want-know how.many several-CL-person why
 cizhi] ne?
 resign Q
 (lit.) ‘How many persons do you wonder [why ____ resigned] Q?’

As exhibited in (13), when these non-D-linked “how-many” phrases are put into *wh*-island constructions, the sentences are not acceptable. The reasoning is simple. They are exclusively non-D-linked and number-denoting, and therefore, cannot escape *wh*-island effects.⁴ To repair them, an additional D-linking marker *na* ‘which’ is added in (14), and the sentences turn out to be acceptable.

- (14) a. Ni xiang-zhidao [Lisi weishenme mai-le na- {*duoshao, ji} -ben-shu] ne?
 you want-know Lisi why buy-PERF which-how.many several-CL-book Q
 (lit.) ‘Which books do you wonder [why Lisi bought ____]?’
 b. Ni xiang-zhidao [na- {*duoshao, ji} -ge-ren weishenme cizhi] ne?
 you want-know which- how.many several-CL-person why resign Q
 (lit.) ‘Which persons do you wonder [why ____ resigned] Q?’

If the above observation is on the right track, we are led to the speculation that the lack of *wh*-island effects in (2) and (3) may only be a disguise. That is, Chinese *wh*-arguments should still be sensitive to *wh*-islands, contrary to what is traditionally assumed. More specifically, for speakers of Chinese, sentences in (2) and (3) are hard to judge at first sight. They need a proper context where the referents of the *wh*-arguments are salient in order to judge them to be grammatical. In other words, the *wh*-arguments must be D-linked in those cases. It is the D-linkedness that is at issue here. The canonical *wh*-arguments as *shei* ‘who’ and *shenme* ‘what’ are ambiguous between the D-linked and non-D-linked interpretations depending on the context. The reason why there are no *wh*-island effects observed in (2) and (3) is because those *wh*-arguments are D-linked. For example, the sentences in (2) should be best paraphrased as those in (15) where the bare *wh*-arguments are replaced with D-linked ones and the sentences are readily acceptable.⁵

4 Note that *weishenme* ‘why’ in Chinese is ambiguous between the genuine *wh*-adverb ‘why’ reading and the nominal-encoded *wh*-adverbial ‘for-what’ reading (Tsai 1994). However, what is relevant in this paper is the genuine *wh*-adverb ‘why’, and not the ‘for-what’ composition. The genuine *wh*-adverb “why” cannot be D-linked and, therefore, is not specified with a [Top] feature.

5 A reviewer provides the following example and suggests that it is ungrammatical to him. For me, it is still fine with the D-linked phrase taking the matrix scope. It might be because its

- (15) a. Ni xiang-zhidao [Lisi weishenme mai-le na-ge-dongxi] ne? (≈[2a])
 you want-know Lisi why buy-PERF which-CL-thing Q
 ‘Which thing do you wonder [why Lisi bought ____]?’
 b. Ni xiang-zhidao [na-ge-ren weishenme cizhi] ne? (≈ [2b])
 you want-know which-CL-person why resign Q
 ‘Which person do you wonder [why ____ resigned]?’

In this section, we have presented a new finding to argue against the traditional observation that Chinese *wh*-arguments lack *wh*-island effects. More specifically, they are ambiguous between the D-linked and non-D-linked interpretations. The reason why they seem to be immune to *wh*-island effects is due to the disguise of D-linkedness.⁶ Nonetheless, this finding would lead us to pattern Chinese *wh*-arguments with Japanese ones, since Japanese *wh*-arguments are known to be sensitive to strong islands but not *wh*-islands. In the next sections, we will

structure is more complicated than (20) below so that the reviewer finds it hard to parse. I leave it open for now.

- (i) Zhangsan xiang-zhidao [Lisi weishenme shouji-le [[na-ge-guojia
 Zhangsan want-know Lisi why collect-PERF which-CL-country
 faxing] de youpiao]]] ne?
 issue DE stamp Q
 (lit.) ‘Which country did Zhangsan wonder why Lisi collected the stamps that ____ issued?’
- 6 A reviewer provides an example in (i) below which is similar to (13) but lacks island effects.
- (i) Q: Ni xiang-zhidao [duoshao-/ji-ge-yinzhang keyi huan nage-naicha]?
 you want-know how.many/several-CL-stamp can exchange which milk.tea
 (lit.) ‘Which milk tea do you know how many stamps can exchange for?’
 a. A: #Wo xiang-zhidao [10-ge-yinzhang keyi huan nage-naicha].
 I want-know 10-CL-stamp can exchange which milk.tea
 ‘I wonder which milk tea can 10 stamps exchange.’
 b. A: Wo xiang-zhidao [duoshao-/ji-ge-yinzhang keyi huan poba naicha].
 I wonder how.many/several-CL-stamp can exchange boba milk.tea
 ‘I wonder how many stamps can exchange boba milk tea.’

For me, still, it is the D-linked *wh*-phrase *nage naicha* ‘which milk tea’ that takes the matrix scope and makes the sentence grammatical as the translation suggests. In (13), the *wh*-adverb *weishenme* is stuck in the embedded clause because it is sensitive to island effects and, therefore, it is easy to tell whether or not the “how-many” phrases can escape island effects. However, in (i), since the D-linked *nage naicha* ‘which milk tea’ can easily take the matrix scope and make the sentence grammatical, at first sight it is hard to tell whether the “how-many” phrase can escape the *wh*-island effects. Now, if it is the “how-many” phrase that takes the matrix scope, the answer to (i) should be (ia). However, (ia) is not a felicitous answer (marked with “#”). Instead, (ib) should be the best answer, where the D-linked *nage naicha* ‘which milk tea’ takes the matrix scope and is provided a value, *poba naicha* ‘boba milk tea’.

Similarly, when we slightly adjust the reviewer’s example (i) to (ii), the sentence is even better. Again, it is the D-linked *wh*-phrase *nage naicha* ‘which milk tea’ that takes the matrix scope. This may be related to the subject-object asymmetry where the subject is easier to get topic-marked and, therefore, matches the D-linked *nage naicha* ‘which milk tea’.

- (ii) Ni xiang-zhidao [nage naicha xuyao duoshao-/ji-ge-yinzhang]?
 you wonder which milk.tea need how.many/several-CL-stamp
 ‘Which milk tea x do you wonder x needs how many stamps?’

demonstrate that even so, they are distinct from each other. A re-investigation on the mechanism behind in-situ *wh*-construal is accordingly called for.

3 Strong island and pied-piping

Japanese *wh*-arguments are not constrained by strong islands, typically, complex NP islands, although it has been noted that they still undergo certain implicit movement to take scope (see, for example, Huang 1982; Lasnik and Saito 1984; Lasnik and Saito 1992; Nishigauchi 1986, Nishigauchi 1990; Watanabe 1992). For instance, Pesetsky (1987) notes that when a Japanese *wh*-argument resides in a relative clause as in (16), a felicitous answer to the question must recapitulate the entire island in (16b), instead of the short answer in (16a). One strategy that has been proposed to catch such a fact is to resort to the pied-piping mechanism, which demands the whole chunk of the complex NP containing the *wh*-argument to covertly move to the sentence-initial position; hence the “long answer” in (16b) (Nishigauchi 1986; Choe 1987; Richards 2008).

- (16) Q: Mary-wa [[John-ni nani-o ageta] hito-ni] atta-no?
 Mary-TOP John-DAT what-ACC gave man-DAT met-Q
 (lit.) ‘What did Mary meet [the man who gave ____ to John]?’
- a. A:*/?? Konpyuutaa desu
 computer COP
 ‘A computer.’
- b. A: [[Konpyuutaa-o ageta] hito] desu
 computer-ACC gave man COP
 ‘The man who gave a computer (to him).’

In Chinese, a major difference distinguishing itself from Japanese is the way how speakers normally answer a question involving an island. A case in point is pointed out by Fiengo et al. (1988). In a question with a subject island in (17), the answer must be an individual-referring NP alone, i.e., the short answer in (17a), and can never recapitulate the entire subject island, (17b).

- (17) Q: [Shei tan gangqin] zui heshi?
 who play piano most appropriate
 (lit.) ‘That who plays the piano is most appropriate?’
- a. A: Zhangsan. (person’s name)
- b. A: #Zhangsan tan gangqin.
 Zhangsan play piano
 ‘Zhangsan plays piano.’

Another case is from a question with a complex NP island in (18). The answer to it can be a short one in (18a). Although it can also be the whole complex NP in (18b), it may be due to some other factors. For example, we may mention deletion

of the remnant, which does not concern us here. The crucial point is that the short answer is felicitous in Chinese but not in Japanese.

- (18) Q: Ni du-guo [[shei xie] de shu]?
 you read-EXP who write DE book
 ‘Who is the person x such that you have read [the book which x writes]?’
 a. A: Zhangsan. (person’s name)
 ‘Zhangsan.’
 b. A: [Zhangsan xie] de shu].
 Zhangsan write DE book
 ‘The book which Zhangsan writes.’

This is reminiscent of the D-linking observation in Japanese in Pesetsky (1987). Consider (19). Contrary to (16a), where the short answer is not possible, in (19a) it turns out to be acceptable when the *wh*-argument *nani* ‘what’ is replaced with a D-linked one, *dono konpyuutaa* ‘which computer’.

- (19) Q: Mary-wa [[John-ni **dono** konpyuutaa-o ageta] hito-ni] atta-no?
 Mary-TOP John-DAT which computer-ACC gave man-DAT met-Q
 (lit.) ‘Which computer did Mary meet the man who gave ____ to John?’
 a. A: IBM-no konpyuutaa desu
 IBM-GEN computer COP
 ‘An IBM computer.’
 b. A: [[IBM-no konpyuutaa-o ageta] hito] desu
 IBM-GEN computer-ACC gave man COP
 ‘The man who gave the IBM computer (to him).’
 (Pesetsky 1987:115)

Pesetsky argues that while non-D-linked *wh*-phrases take scope by movement, D-linked ones do not. They are assigned scope by unselective binding, a non-movement mechanism. Therefore, they can escape island effects without pied-piping and allow the short answers. In this regard, since Chinese non-D-linked *wh*-arguments in (18) also allow the short answers, they should employ a similar non-movement mechanism. In fact, it has been adopted by Aoun and Li (1993) and Tsai (1994) (see Reinhart 1997 for a similar approach). Note, in particular, that although they adopt the unselective binding approach, they depart from Pesetsky (1987) in applying it to the non-D-linked *wh*-arguments instead of the D-linked ones. Now, if the non-movement mechanism is adopted for the non-D-linked *wh*-arguments in Chinese, it predicts the absence of *wh*-island effects, since no movement is involved. Such a prediction runs contrary to the finding we have observed in the previous section. We will return to this shortly.

On the other hand, one might wonder whether Chinese “how-many” phrases are akin to those island-sensitive *wh*-adjuncts which adopt a certain implicit movement approach, and hence the observed *wh*-island effects (Huang 1982;

Lin 1992; Tsai 1994).⁷ The speculation is immediately rejected with the test of strong island constructions. Consider (20). When the “how-many” phrases are put into various types of strong islands, they are all grammatical with short answers. Further, they are exclusively interpreted as non-D-linked and number-denoting. This strongly indicates that these “how-many” phrases are just like the canonical in-situ *wh*-arguments, being immune to strong island effects. An immediate question naturally arises: Why are the strong islands too weak to block the “how-many” phrases in Chinese, while the weak islands (*wh*-islands) are so strong that can block them? We will return to it in Section 5 “Theoretical implications”.

(20) a. (Complex NP island)

Q: Ni shouji-le [[{duoshao,ji}-ge-guojia faxing] de youpiao] le ne?
you collect-PERF how.many-CL-country issue DE stamp PERF Q
(lit.) ‘How many countries have you collected [the stamps that ____ issued]?’

A: 76-ge(-guojia).
76-CL-country
‘76 countries.’

b. (Complex NP island)

Q: [[De {duoshao,ji}-fen yishang] de ren] keyi dedao jiangshang?
gain how.many-point above DE person may get reward
(lit.) ‘More than how many points may [the person who scores ____] get a reward?’

A: 90-fen.
90-point
‘90 points.’

c. (Adjunct island)

Q: Wo [zai da-wan {duoshao,ji}-dao-timu zhihou] jiu keyi xiuxi ne?
I at answer-finish how.many-CL-question after then may rest Q
(lit.) ‘How many questions may I take a rest [after I finish answering ____]?’

A: 20-dao(-timu).
20-CL-question
‘20 questions.’

d. (Sentential subject island)

Q: [Women yaoqing {duoshao,ji}-ge-ren canjia hunli] bijiao heshi?
we invite how.many-CL-person join wedding more appropriate
(lit.) ‘How many people is [that we invite ____ to attend the wedding] more appropriate?’

7 A reviewer wonders whether the “how-many” phrases in Chinese are just like the *wh*-adjunct *zenme(yang)* ‘how’, which can escape strong island effects (Lin 1992, see also Huang 1982 for the (non-)objectual property). The point is when being objectual or nominal-encoded (Tsai 1994), “how” in Chinese can escape strong island effects as well as *wh*-island effects. However, the “how-many” phrases, on the one hand, serve as argumental *wh*-phrases in all the cases presented in this paper. On the other hand, they cannot escape *wh*-island effects, unlike the nominal-encoded “how” in Chinese.

- A: Buyao chaoguo 100-ge(-ren).
 not exceed 100-CL-person
 ‘No more than 100 people.’

In this section, we have shown that although Chinese and Japanese *wh*-arguments are both sensitive to *wh*-island effects, they still behave differently with respect to the strong islands, in particular the short answers. In what follows, two further differences will be presented to distinguish the two languages.

4 (Anti-)crossing and multiple *wh*-interpretations

Two further observations distinguish Chinese *wh*-arguments from Japanese ones: (anti-)crossing effects and multiple *wh*-interpretations. Let us start with the crossing effects. In English, when launched from a structurally-lower site in a multiple *wh*-construction, a *wh*-element is able to take the matrix scope, yielding the nesting dependency as illustrated in (21a). When launched from a structurally-higher site forming a crossing dependency as in (21b), the *wh*-element fails to take the matrix scope, and hence the crossing effects (Pesetsky 1982; Richards 2001).

- (21) a. ?Which book_i do you know who_j to persuade _{t_j} to read _{t_i}

 b. *Who_j do you know which book_i to persuade _{t_j} to read _{t_i}

Saito (2004) shows that Japanese exhibits the so-called anti-crossing effects where the Japanese counterpart of English in (22) constitutes the opposite distribution. (22) has four interpretations as shown in (23). What concerns us is the contrast between (23c) and (23d). (24) illustrates their corresponding LF forms in (24a) and (24b), respectively. It shows that the crossing form (24a) is fine while the nesting one (24b) is prohibited, contrary to English (see [21]), and hence the anti-crossing effects.

- (22) Taro-wa [_{CP} dare-ga nani -o katta ka] siritagatteru no?
 -TOP who-NOM what-ACC bought Q want.to.know Q
 ‘Q Taro wants to know [Q who bought what]’

- (23) a. Does Taro want to know [for which *x*, *y*] *x* bought *y*
 b. ? [For which *x*, *y*] Taro wants to know whether *x* bought *y*
 c. ? [For which *x*] Taro wants to know [for which *y*] *x* bought *y*
 d. * [For which *y*] Taro wants to know [for which *x*] *x* bought *y*

- (24) a. ?[_{CP} Wh₂ [_{TP} ... [_{CP} Wh₁ [_{TP} ... *t*₂ ... *t*₁ ...] Q] ...] Q]

 b. *[_{CP} Wh₁ [_{TP} ... [_{CP} Wh₂ [_{TP} ... *t*₂ ... *t*₁ ...] Q] ...] Q]

However, the so-called (anti-)crossing effects are not observed in Chinese, as pointed out by Takita et al. (2007). Consider the relevant Chinese counterpart in (25). In (25), the scope interpretation shows that either the lower *wh*-argument or the higher *wh*-argument can take the matrix scope regardless of its structural height and, therefore, no crossing or anti-crossing effects occur in Chinese, unlike Japanese and English.

- (25) Zhangsan xiang-zhidao [shei mai-le shenme] ne?
 Zhangsan want-know who buy-PERF what Q
 a. [For which x] Zhangsan wants to know [for which y] x bought y
 └──────────────────┘ └──────────┘
 b. [For which y] Zhangsan wants to know [for which x] x bought y
 └──────────────────┘ └──────────┘
 (data from Takita et al. 2007)

Although Takita et al. (2007) do not mention whether D-linking plays a role, for us the interpretation in (25) is felicitous only when the *wh*-arguments in question are D-linked. More importantly, both the crossing and anti-crossing effects are accounted for under the condition that *wh*-movement is involved in English and Japanese either overtly or covertly (Pesetsky 1982; Richards 2001; Saito 2004). The fact that Chinese lacks (anti-)crossing effects suggests that the non-movement mechanism is preferred for Chinese *wh*-arguments.

Multiple *wh*-interpretations present yet another difference. Multiple *wh*-questions in Japanese can yield two interpretations, multiple-pair (MP) and single-pair (SP) interpretations, as (26) indicates (Miyagawa 1997; Bošković 2003; Kitagawa et al. 2004).

- (26) A: John-wa dare-ni nani-o makaseta-no?
 John-TOP who-DAT what-ACC entrusted -Q
 ‘Who did John entrust with what?’
 B: Tom-ni-wa renraku-o, Bill-ni-wa kaimono-o,
 Tom-DAT-TOP contact-ACC Bill-DAT-TOP shopping-ACC
 Jim-ni-wa soozi-o makaseta-rasii (MP reading)
 Jim-DAT-TOP contact-ACC entrusted-seem
 ‘It seems that he asked Tom to call around, Bill to do shopping, and Jim to clean up the place.’
 B’: Tom-ni renraku-o makaseta-rasii (SP reading)
 Tom-DAT contact-ACC entrusted-seem
 ‘It seems that he asked Tom to call around.’
 (adapted from Kitagawa et al. 2004)

Kitagawa et al. (2004) observe that in Japanese, when multiple *wh*-phrases are embedded in a non-island construction, the sentence may exhibit either the SP or the MP interpretation. When the same *wh*-phrases are embedded in a *wh*-island as in (27b), the sentence can allow only the SP interpretation. Such a phenomenon is termed as “Masked Island Effect”, where the MP reading is blocked by a *wh*-island. The details are ignored for simplicity.

- (27) a. Supo-Niti-wa [dono-kyuudan-ga dono-yuuboo-sensyu-o
 Japan-Sports-TOP which-ball.club-NOM which-promising-player-ACC
 itii-si'mee-siyooto-siteiru-to] kanga'eteiru -no? (SP, MP)
 intend.to.select.as.No.1-that think-COMP Q
 'Which ball club does Sports Nippon think will select which promising
 player as No. 1 draft pick?'
 b. Supo-Niti-wa [dono-kyuudan-ga dono-yuuboo-sensyu-o
 Japan-Sports-TOP which-ball.club-NOM which-promising-player-ACC
 itii-si'mee-siyooto-siteiru-kado'oka] siritaga'tteiru -no? (SP, *MP)
 intend.to.select.as.No.1-whether want.to.know-COMP Q
 'With respect to which ball club does Sports Nippon want to know if it
 will select which promising player as No. 1 draft pick?'

Nonetheless, the above contrast does not find its counterpart in Chinese. In (28), both sentences are ambiguous between the SP and MP interpretations no matter whether the *wh*-pairs are embedded in the *wh*-island or not. Note that *shifou* 'yes-no' in (28b) may license the indefinite interpretation of the *wh*-phrases. Let us neglect it and concentrate on the interrogative interpretation. Meanwhile, a sentence-final *wh*-question particle *ne* is added to ensure the matrix *wh*-reading. As the answers to (28b) in (29) suggest, both the MP and the SP readings are available even if the *wh*-arguments in question are embedded in the *wh*-island construction.

- (28) a. Zhangsan renwei [na-ge-ren hui mai na-ben-shu] ne?
 Zhangsan think which-CL-person will buy which-CL-book Q
 (lit.) 'Which person does Zhangsan think ____ will buy which book]?'
 (SP, MP)
 b. Zhangsan xiang-zhidao [na-ge-ren shifou hui mai
 Zhangsan want-know which-CL-person whether will buy
 na-ben-shu] ne?
 which-CL-book Q
 (lit.) 'Which person does Zhangsan wonder whether ____ will buy which
 book]?' (SP, MP)
- (29) a. Zhangsan xiang-zhidao [Lisi shifou hui mai *The Sword in the Stone*,
 Zhangsan want-know Lisi whether will buy *The Sword in the Stone*
 Wangwu shifou hui mai *Aladdin*,
 Wangwu whether will buy *Aladdin*
 Zhaoliu shifou hui mai *The Hundred and One Dalmatians*.
 Zhaoliu whether will buy *The Hundred and One Dalmatians*
 'Zhangsan wonders [whether Lisi will buy *The Sword in the Stone*,
 Wangwu will buy *Aladdin*, and Zhaoliu will buy *The Hundred and One*
Dalmatians].'
 (MP)
 b. Zhangsan xiang-zhidao [Lisi shifou hui mai *The Sword in the Stone*.
 Zhangsan want-know Lisi whether will buy *The Sword in the Stone*
 'Zhangsan wonders whether Lisi will buy *The Sword in the Stone*.' (SP)

To ensure the genuine MP interpretation without being confused by the “cooperative answer” (Krifka 1992; Srivastav Dayal 1992), Kitagawa et al. suggest using “list” verbs, such as *list*, *enumerate*, and *rattle off*, which semantically select *wh*-questions and presuppose plurality of answers. It is predicted that the structure of (28) in Chinese will be fine with the list verbs. Such a test is well borne out in (30) when the list verb *liechu* ‘list’ is adopted. Namely, the MP interpretation is still present with the *wh*-island in Chinese.⁸

- (30) a. Women lai liechu Zhangsan renwei [na-yi-ge-ren hui
 we come list Zhangsan think which-one-CL-person will
 mai na-yi-ben-shu].
 buy which-one-CL-book
 ‘Let’s list which person Zhangsan thinks [____ will buy which book].’
 b. Women lai liechu Zhangsan xiang-zhidao [na-yi-ge-ren shifou
 we come list Zhangsan want-know which-one-CL-person whether
 hui mai na-yi-ben-shu].
 will buy which-one-CL-book
 ‘Let’s list which person x Lisi wonders [whether x will buy which book].’

Although the aim of our study is not to endorse either the movement or the non-movement approach for the *wh*-construals, the MP interpretation seems to favor the latter. That is, according to Kitagawa et al. (2004), movement is involved in deriving the MP interpretation, and it is blocked by *wh*-islands. Consequently, the fact that MP interpretation exists in Chinese seems, again, to suggest that the non-movement approach is favored.

In this section, two tests are adopted to distinguish the *wh*-arguments between Japanese and Chinese. Regarding the (anti-)crossing effects, Japanese exhibits the anti-crossing effects, while Chinese has no effects whatsoever. Regarding the multiple *wh*-interpretations, Japanese only allows the SP interpretation, whereas

8 The study by Liao and Wang (2007) shows that in Chinese the pair-list (multiple-pair) reading is lost in *wh*-islands in (i), which suggests that at least one *wh*-element should undergo some kind of movement to derive the pair-list reading in the spirit of Bošković (2003). If that is the case, the multiple *wh*-interpretations under discussion here would not be able to distinguish Japanese from Chinese. On the other hand, I suspect the example they provide might not be an appropriate one since, as one can see from the interpretation, it is a Yes/No question which would blur the *wh*-interpretation. Moreover, the *shi-bu-shi* ‘be-not-be, whether’ in (i) may license the *wh*-phrases into indefinite ones in Chinese, which again, will confuse us the judgment easily.

(i) Zhangsan shi-bu-shi jiao [shei mai-le shenme]?
 Zhangsan whether order who bought what
 (lit.) ‘Does Zhangsan tell who to buy what?’

A possible example is given in (ii) where the pair-list reading surfaces again. Due to limitation of space, I will not further delve into the issue.

(ii) Zhangsan xiang-zhidao [weishenme shei mai-le shenme]?
 Zhangsan want-know why who bought what
 ‘For which x, y, Zhangsan wants to know why x bought y?’

Chinese allows both the SP and the MP interpretations. Even if the *wh*-arguments of both Japanese and Chinese are the D-linked ones, the above distribution suggests that the two types are still distinct from each other.

5 Theoretical implications

Let us summarize what has been demonstrated so far. We have seen that Chinese *wh*-arguments are subject to *wh*-island effects, thanks to the evidence from “how-many” phrases. The effects can be suppressed by D-linkedness of the *wh*-phrases, which leads to the traditional observation that Chinese lacks *wh*-island effects. Meanwhile, although this finding prompts us to pattern Chinese and Japanese *wh*-construal together, their distinct behaviors with respect to strong island effects, (anti-)crossing effects, and multiple *wh*-interpretations still run afoul of such a speculation. The differences between Japanese and Chinese lead us to attribute them to the different mechanisms underlying their *wh*-construals. (31) illustrates what have been discussed so far.

(31)

	<i>Wh</i> -island effects	Strong island effects	Short answers	Anti-crossing	Multiple- <i>wh</i> in <i>wh</i> -island
Japanese	Yes	No	No	Yes	SP
Chinese	Yes	No	Yes	No	SP/MP

Two lines of thoughts are prompted. To begin with, the mechanism underlying Chinese *wh*-arguments should not be the same as those underlying the Japanese ones. Adopting the implicit movement approach similar to Japanese would result in a dilemma in accounting for the short answers in strong islands in Chinese (see [18a] and [20]). Also, the (anti-)crossing effects and the blocking of MP interpretation are taken to involve movement. Yet, the fact that Chinese lacks either of these effects suggests that the movement approach should not be feasible in Chinese. Meanwhile, the loss of the MP interpretation in *wh*-islands is attributed to the blocking of covert movement (Kitagawa et al. 2004, see also Hagstrom 1998; Bošković 2003). Once again, the fact that Chinese allows the MP interpretation indicates that the implicit movement approach is not tenable. It follows that maintaining the non-movement approach seems to fare better for Chinese since it immediately explains the above-mentioned problems. Meanwhile, the lack of strong island effects also follows without further elaboration. That is, no matter whether Tsai’s (1994) unselective binding or Reinhart’s (1997) choice function is adopted, as long as it is subject to non-movement (see also Aoun and Li 1993), the “how-many” phrases in Chinese can escape the strong islands since they do not move at all. If that is the case, then, we are left with the puzzle of the *wh*-island effects observed in this study because the non-movement approach also predicts the absence of *wh*-island effects, which is contrary to observed fact. This prompts us to the second line of thought.

The second line of thought emerges naturally from the first one. That is, can the *wh*-island effects be considered as a cross-linguistic phenomenon and be re-interpreted as some blocking effect, regardless of whether the *wh*-phrases undergo movement or not? In this sense, previous analyses on the mechanisms underlying in-situ *wh*-construal of different language types can still be maintained while we can concentrate on what causes the *wh*-island effects in Chinese. A tentative solution may be inspired by Rizzi (2006, 2013; see also Starke 2001) where extraction of a “more richly specified” *wh*-phrase from a *wh*-island is better than the un-extractable one. By “more richly specified”, it means that the *wh*-phrase is encoded with more features than the “less specified” one. For instance, (32a) is better than (32b) because “which problem” has an additional [Top] feature and, therefore, moving across a less specified “why” is easier (see the illustration in [33]).

- (32) a. ?Which problem do you wonder [how to solve ____]?
 b. *How do you wonder [which problem to solve ____]?
- (33) a. ?Which problem_[Q+Top] [how_[Q] ____]?
 b. * How_[Q] [which problem_[Q+Top] ____]?

Extending this idea to Chinese, if the non-movement licensing mechanism is preferred for its in-situ *wh*-arguments, we may well assume that the *wh*-island effects arise from the blocking of the probe-goal relation between the matrix C-head and the relevant *wh*-elements (see a similar approach in Tsai 2015; Abe 2016, Abe 2017). Then, again, the less specified “why” cannot block the probing of a D-linked *wh*-argument, since the latter is more richly specified with an additional [Top] feature. Take (14a) as an example, illustrated in (34). The D-linked *wh*-argument “which thing” is probed by the matrix C-head with the same bundle of features [Q, Top] under the probe-goal relation, and the intervening, “less richly specified” *wh*-element “why” does not pose any threat to the agreement system in the spirit of Rizzi (2006, 2013, and Starke 2001).

- (34) [_{CP} C_[Q, Top] ... wonder [_{CP} C_[Q] ... ‘why_[Q]’ ... ‘which thing_[Q, Top]’]]
 Agree

Granted that, we may still maintain the non-movement mechanism for Chinese *wh*-arguments while explaining why the non-D-linked *wh*-phrases are still sensitive to *wh*-island effects. Meanwhile, the lack of strong island effects is also preserved. It follows that *wh*-islands pose as a cross-linguistic, independent phenomenon against the structure-dependent strong islands (cf. Bošković 2015) and should, therefore, be independently dealt with.

6 Concluding remarks

In linguistic studies of *wh*-in-situ languages, it has long been assumed that while *wh*-arguments of Japanese-type exhibit *wh*-island effects, those of Chinese-type do not, although both types are unconstrained by strong islands. In this study,

evidence is provided to show that (1) Chinese *wh*-arguments do exhibit *wh*-island effects, contrary to what has been assumed in the past; (2) the apparent lack of *wh*-island effects is simply due to the disguise of D-linkedness; (3) Chinese-type and Japanese-type *wh*-arguments still cannot be patterned together, although they seem to behave similarly with respect to *wh*-island effects; and (4) this leads to the need to reinvestigate the mechanisms underlying the *wh*-elements of the *wh*-in-situ languages on the one hand and those triggering *wh*-island effects on the other.

As for the mechanisms behind the in-situ *wh*-arguments of Chinese-type, if the implicit movement approach is adopted, problems arise in explaining the above-mentioned contrasts in Sections 3 “Strong island and pied-piping” and 4 “(Anti-)crossing and multiple *wh*-interpretations”. It follows that the relevant *wh*-elements in Chinese should not undergo any movement. On the other hand, if the non-movement approach is adopted, it would predict the absence of *wh*-island effects, contrary to the observations made above. A possible way out is to re-interpret the *wh*-island effects to be some other effects, for example, intervention effects (cf. Beck 1996; Beck and Kim 1997; Pesetsky 2000; Miyagawa 2004; Beck 2006, among many others). For the *wh*-moved languages, the effects are triggered by the blocking of the movement path where extraction of a “more richly specified” *wh*-phrase from a *wh*-island is better than a less-specified one in the sense of Relativized Minimality (Rizzi 2006; Rizzi 2013, see also Starke 2001, cf. Rizzi 1990). For *wh*-in-situ languages, we propose that the effects may be attributed to the blocking of the probe-goal relation of an agreement system in a broad sense of Relativized Minimality. Either way, *wh*-islands pose as a cross-linguistic, independent phenomenon against the structure-dependent strong islands (cf. Bošković 2015) and should, therefore, be independently dealt with, e.g., to subsume it into a general constraint requiring Relativized Minimality on either movement or agreement.

Note, however, that not all of the *wh*-arguments in languages can be saved by D-linkedness. For instance, in English, D-linkedness cannot nullify strong island effects as in (35). That is, extraction of *wh*-elements from strong islands is not possible and it can be attributed to structural constraints. More specifically, strong islands are structure islands which ban *wh*-extractions out of them owing to island constraints (Chomsky 1964; Ross 1967), e.g., bounding nodes, Subjacency, or barriers (Chomsky 1973, Chomsky 1977, Chomsky 1986), or extraction from the complements of lexical heads (Bošković 2015). Either way, it has nothing to do with the [Top] feature.

- (35) a. *Which author do you like [the book that ___ writes]? (complex NP island)
 b. *Which author do you tell John after ___ writes a book? (adjunct island)

Nonetheless, the [Top] feature plays a crucial role in nullifying *wh*-island effects and, therefore, assuming the [Top] feature has a direct bearing on the (non-) existence of *wh*-island effects. It follows that the mechanisms behind weak islands and strong islands are different and should be independently dealt with.

A reviewer wonders about the legitimacy of [Top] feature, which poses a crucial role in our analysis. The use of [Top] feature is derived from the observation that D(iscourse)-linkedness of a *wh*-argument nullifies *wh*-island effects. Therefore, in terms of “discourse” the [Top] feature is the best candidate to make use of since the referents in question are “topic-oriented”. That is, they should have appeared in the context and serve as the salient referents. In fact, Rizzi (2006, 2013) and Starke (2001) also make use of it in developing the featural Relativized Minimality. Therefore, we take the stance that the [Top] feature can best represent the main idea in this paper. On the other hand, we may make use of the D-feature (Chomsky 1995) or the [+D] feature (Roberts 2010) to serve the purpose. Either way is fine and would not pose any threat to the analysis. For instance, in Chomsky 1995 a strong D-feature (reduced from Extended Projection Principle, EPP) is assumed on finite T to attract the subject. Following Miyagawa (2010), where a topic feature on C may be an alternative instantiation of the EPP feature in discourse configurational languages (Kiss 1995) such as Chinese, the [Top] feature assumed in (34) becomes more feasible in our study.

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漢語疑問詞孤島效應之反思

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提要

傳統上對於漢語疑問論元 (wh-argument) 不具疑問詞孤島效應 (wh-island effect) 的看法似乎只是表面上的觀察。來自數量疑問詞的證據顯示即使是疑問論元漢語仍然具有疑問詞孤島效應，而該效應在言談連結 (discourse-linking) 的偽裝之下得以消失。雖然漢語疑問詞孤島效應的消失使其疑問詞結構與日語似乎一致，但是進一步測試發現這兩種語言在強孤島效應、(反)交叉 (crossing) 效應和多重疑問詞語意方面仍然不同。這樣的發現使得我們須要重新檢討在位疑問詞範域取得之機制以及觸發疑問詞孤島效應之機制。

關鍵詞

疑問詞孤島效應，言談連結，數量疑問詞，在位疑問詞，強孤島效應