

Pseudo matrix sluicing constructions in Mandarin Chinese

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Speakers of Mandarin Chinese have a variety of ways to respond to others, one of which is the employment of a single *wh*-phrase to form a follow-up question. However, using a short *wh*-phrase to ask a question is not without any restrictions. Sometimes, the antecedent sentence needs to contain an indefinite NP, while at other times it does not. I first consider the possibility of applying the movement and ellipsis approach and the base-generation approach to these Mandarin short *wh*-phrase questions. Given the fact that neither of these analyses captures the syntactic properties of this type of question in Mandarin Chinese, I propose to deal with it in terms of an analysis that is based on LF-copying. More specifically, I propose that the *wh*-phrase in a short *wh*-phrase question is base-generated in the Spec of CP, which is followed by an empty IP in the underlying and surface structure. When this structure is processed at LF, it becomes interpretable after the antecedent IP is copied into the empty IP position. Since the *wh*-phrase remains in its original position throughout the derivation, I call this type of question a *pseudo matrix sluicing construction*. This analysis not only successfully accounts for the derivation of Mandarin short *wh*-questions, but also respects the fact that Mandarin Chinese is a *wh*-in-situ as well as a non-preposition-stranding language.

Keywords: ellipsis, fragment, sluicing, LF-copying, *wh*-phrase

1. Introduction

Sluicing constructions refer to sentences like (1), in which there is a *wh*-phrase associated with the indefinite NP that appears in the first clause.

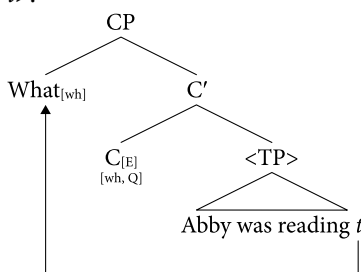
- (1) Abby was reading something, but I don't know what.

According to Merchant (2004), the formation of sluicing constructions involves three steps: First, the [E]-feature endowed with the [*uwh**, *uQ**] features needs

to adjoin to a head that carries the same features, so that the uninterpretable features on the [E]-feature can be checked; under this assumption, the [E]-feature can only appear on C (Lobeck 1995); second, the *wh*-phrase *what* moves to the Spec of CP to check the corresponding feature on C; third, the [E]-feature on C instructs the PF component not to pronounce its complement, which gives rise to TP-ellipsis. This analysis is depicted below.

- (2) a. Abby was reading something, but I don't know what <Abby was reading *t*>.

b.



Under this framework, the *wh*-phrase that survives ellipsis by moving to the Spec of CP is called a *remnant* and the indefinite NP appearing in the antecedent clause is called a *correlate*.

Mandarin Chinese has a type of sentence similar to English sluicing constructions. Two such examples discussed in Wei (2004) are represented below.

- (3) a. *Zhangsan kandao mouren, danshi wo bu zhidao *(shi) shei.*
 Zhangsan see someone but I not know is who
 ‘Zhangsan saw somebody, but I don’t know who.’
 b. *Zhangsan mai-le yixie-dongxi, danshi wo bu zhidao *(shi) shenme.*
 Zhangsan buy-ASP some-thing but I not know is what
 ‘Zhangsan bought something, but I don’t know what.’

The major difference between English sluicing constructions and their Mandarin counterparts lies in the appearance of the copula verb *shi* in Mandarin Chinese. Wei (2004) notes that *shi* is required in sentences like (3a) and (3b), but it can be omitted in the following examples.

- (4) a. *Women zhongyu keyi xiujia le, danshi wo bu zhidao (shi)*
 we finally can take-a-break ASP but I not know BE
shenmeshihou.
 when
 ‘We finally can have a holiday, but I don’t know when.’

- b. *Zhangsan jueding yao xiuxue, danshi wo bu zhidao (shi)*
 Zhangsan decide want leave-school but I not know BE
weishenme.
 why
 ‘Zhangsan decided to leave school, but I don’t know why.’

(4a) and (4b) differ from (3a) and (3b) in that the omission of *shi* in the former two sentences does not give rise to any ungrammaticality. In order to account for this contrast, Wei (2004) proposes that the *wh*-phrases in (3a) and (3b) are not predicates, so the copula verb *shi* must appear to form a complete predicate with the *wh*-phrase that immediately follows it; on the other hand, when the *wh*-phrase is predicative, like *shenmeshihou* ‘when’ and *weishenme* ‘why’ in (4a) and (4b), *shi* is not required, and it is used as an emphatic modal in these cases.¹ This analysis suggests that there exists a null constituent in the structure, which is predicated either by the combination of *shi* and the *wh*-phrase or by the *wh*-phrase itself. If we apply Wei’s (2004) analysis to (3a), we end up with the following construction.

- (5) *Zhangsan kandao mouren, danshi wo bu zhidao [pro shi shei].*
 Zhangsan see someone but I not know is who
 ‘Zhangsan saw somebody, but I don’t know who.’

In (5), unlike in English sluicing constructions, the *wh*-phrase does not undergo movement; instead, it remains in its base-generated position and is linked to the subject *pro* by predication. Given the fact that this type of sentence differs from sluicing constructions in several aspects, Wei (2004) calls it a *pseudo-sluicing construction*.²

The phenomenon mentioned above concerns the presence of a *wh*-phrase in an embedded clause, which is part of a long sentence uttered by one speaker. However, such long sentences can be broken into two parts, both of which are uttered by different speakers in a dialogue.

- (6) a. Someone called. (Merchant 2004: 664)
 b. Really? Who?

1. Wei (2004) provides sufficient evidence to argue against the idea that Mandarin sluices are derived via focus movement with the insertion of *shi* (cf. Wang 2002; Wang & Wu 2006); nor can this type of construction be viewed as a cleft or pseudo-cleft construction. For relevant discussions, in addition to Wei (2004), please see Adams (2004), Wei (2011), Adams & Tomioka (2012), and Li & Wei (2017).

2. Wei (2004) proposes that there are two types of empty categories preceding *shi*; one is the E-type pronoun and the other the event *pro*.

- (7) a. Someone solved the problem. (Lasnik 2001)
 b. Who?

(6) and (7) contain two short sentences, the former of which is a declarative that provides background information, while the latter consists of a *wh*-phrase serving as a follow-up question that seeks more information. Mandarin Chinese has a similar phenomenon.

- (8) a. *Mouren da dianhua lai le.*
 someone hit telephone come SFP
 'Someone is calling.'
 b. *Shei?*
 who
 'Who is the person making the phone call?'
 (9) a. *Yuehan xiang yue mouren kan dianyin.*
 John want invite someone watch movie
 'John wants to invite someone to watch a movie.'
 b. *Shei?*
 who
 'Who is the person that John wants to invite to watch a movie?'

As illustrated above, speakers of Mandarin Chinese can use a single *wh*-phrase, like *shei* 'who' in (8) and (9), to respond to the sentences they hear. Similar to (6) and (7), what these two examples have in common is that the first sentence in the dialogue also contains an indefinite NP that serves as the correlate of the *wh*-phrase used in the inquiry. In (8), the indefinite NP is *mouren* 'someone', which is the subject of the sentence, and in (9), the same phrase serves as the complement of the verb *yue* 'invite'. The indefinite NP that appears in the first sentence of a dialogue is not restricted to *mouren* 'someone'.

- (10) a. *You-ren da dianhua lai le.*
 have-person hit telephone come SFP
 'A person is making a phone call.'
 b. *Shei?*
 who
 Intended meaning: 'Who is the person making the phone call?'
 (11) a. *Yi-wei Yuehan-de daxue tongxue zhao ta chi wancan.*
 one-CL John-DE college classmate find him eat dinner
 'One of John's college classmates invited him for dinner.'
 b. *Shei?*
 who
 Intended meaning: 'Who is that person that invited him for dinner?'

- (12) a. *Yuehan xiang renshi yi-ge nusheng.*
 John want know one-CL girl
 'John wants to know a girl.'
- b. *Shei?*
 who
 Intended meaning: 'Who is that girl?'

The indefinite NP in (10a) is *you-ren* 'a (specific) person', which is the subject of the sentence; the corresponding NPs in (11a) and in (12a) are *yi-wei Yuehan-de daxue tongxue* 'one of John's college classmates' and *yi-ge nusheng* 'one girl', respectively. As we can see above, all these sentences can be responded by the single *wh*-phrase *shei* 'who', the interpretation of which varies depending on what precedes it.

As for which *wh*-phrase can be used as a short reply in a dialogue, some Mandarin *wh*-phrases other than *shei* 'who' that can be used in this way are provided below.

- (13) a. *Yuehan mai-le mou-ben/yi-ben shu.*
 John buy-ASP some-CL/one-CL book
 'John bought some book/a book.'
- b. *Shenme shu?*
 what book
 Intended meaning: 'What book was bought by John?'
- (14) a. *Yuehan xiang zhao yi-tian qu tanwang nainai.*
 John want find one-day go visit grandmother
 'John wants to find one day to visit Grandmother.'
- b. *Na-yi tian?*
 which-one day
 Intended meaning: 'On which day does John want to visit grandmother?'
- (15) a. *Jingfang yong mou-zhong qiang jibi-le xianyifan.*
 police use some-kind gun kill-ASP suspect
 'The police used a specific kind of gun to kill the suspect.'
- b. *Na-zhong/shenme qiang?*
 which-kind/what gun
 Intended meaning: 'What kind of gun did the police use to kill the suspect?'

In (13–15), the *wh*-phrases *shenme shu* 'what book', *na-yi tian* 'which day', and *na-zhong/shenme qiang* 'which kind of/what gun' are used by the second speaker to form a question.

The fact that speakers of Mandarin Chinese can use a single *wh*-phrase to respond to earlier utterances does not mean that they can always do so. Sometimes, responding with a *wh*-phrase is not acceptable.

- (16) a. *Dianhua xiang-le.*
 telephone ring-ASP
 ‘The telephone is ringing.’
 b. **Shei?*
 who
 Intended meaning: ‘Who is calling?’
- (17) a. *Jingfang jibi-le xianyifan.*
 police kill-ASP suspect
 ‘The police killed the suspect.’
 b. **Na-zhong qiang?*
 which-kind gun
 Intended meaning: What kind of gun did the police use to kill the suspect?

Unlike the earlier examples, the second speaker in (16) and (17) is not allowed to use a *wh*-phrase as a response. If we compare (16–17) with (8–15), we might attribute the infelicitous use of a *wh*-phrase in the former pair of examples to the lack of an indefinite correlate in the preceding declarative sentence. However, the absence of a correlate in the antecedent sentence does not make responses like *shenme shihou* ‘when’, *ji dian* ‘what time’, *zai nali* ‘where’, or *weishenme* ‘why’ unacceptable.

- (18) a. *Yuehan yao likai Taiwan le.*
 John will leave Taiwan SFP
 ‘John will leave Taiwan.’
 b. *Shenme shihou?*
 what time
 Intended meaning: ‘When will he leave Taiwan?’
- (19) a. *Wo mingtian xiang qu guangjie.*
 I tomorrow want go shopping
 ‘I want to go shopping tomorrow.’
 b. *Ji dian?*
 what time
 Intended meaning: ‘What time will you go shopping tomorrow?’
- (20) a. *Yuehan yishi-le tade xinyong ka.*
 John lose-ASP his credit card
 ‘John lost his credit card.’

- b. *Zai nali?*
 in where
 Intended meaning: ‘Where did he lose his credit card?’

- (21) a. *Yuehan zuotian di-chu ci-cheng.*
 John yesterday hand-out resignation-letter
 ‘John handed in the resignation letter yesterday.’
 b. *Weishenme?*
 why
 Intended meaning: ‘Why did he hand in the resignation letter yesterday?’

These examples are similar to those in (16) and (17) in that the sentence uttered by the first speaker does not contain an indefinite NP, yet simply uttering a *wh*-phrase generates grammatical and understandable question sentences. There is one subtype of sluicing constructions in English that exhibits the same property.

- (22) a. He’s writing, but you can’t imagine where/why/how fast/with whom.
 (Ross 1969: 252)
 b. If Sam was going, Sally would know where. (Chung et al. 1995: 241)

The *wh*-phrase in the sluice in (22a) and (22b) does not have any explicit constituents as its correlate, but the sentence containing it is fully grammatical. Chung et al. (1995) name this phenomenon *sprouting*, the detail of which will be discussed later. Therefore, if we compare (18–21) with (16–17), we might say that sometimes sprouting generates acceptable short *wh*-questions while sometimes it does not in Mandarin Chinese.

Wh-constructions in Mandarin Chinese have drawn a lot of attention in the literature, most of which focuses on how *wh*-questions are formed and interpreted (Huang 1982; Tsai 1994, 1999) and when *wh*-phrases can be interpreted as indefinite or even negative (Cheng 1991; Li 1992; Cheung 2008; Yang 2015). To the best of my knowledge, the use of single, independent *wh*-phrases as question sentences in Mandarin Chinese has not yet been extensively investigated. This paper aims to account for the derivation of short *wh*-phrase questions in Mandarin Chinese and addresses why using a single *wh*-phrase to form a follow-up question is sometimes acceptable and sometimes prohibited. This paper is organized as follows. §2 chronologically reviews earlier works investigating similar constructions in Japanese, including Hasegawa (2008) and Fujiwara (2020). In §3, I first discuss the possibility of applying the analyses reviewed in §2 to Mandarin Chinese, and point out the problems in doing so. Given the fact that none of these analyses can account for the formation of Mandarin short *wh*-phrase questions, I appeal to the LF-copying approach developed in Williams (1977) and Chung et al. (1995). I argue that the *wh*-phrase that appears in the short question is base-

generated in the Spec of CP, which is followed by an empty IP in the beginning of the derivation. Later, this empty IP position is supplied with a copy of the IP in the antecedent sentence via IP-recycling at LF, which renders the *wh*-phrase in the Spec of CP and the entire structure interpretable. The advantage of adopting this approach is that the *wh*-phrase remains in-situ throughout the derivation, which directly follows from the fact that Mandarin Chinese is a *wh*-in-situ language; in addition, this analysis does not strand prepositions in the derivation of certain short *wh*-questions, which respects another property of Mandarin Chinese: its being non-preposition-stranding. § 4 concludes the paper.

2. Japanese matrix sluicing constructions

Before providing an analysis to account for the derivation of Mandarin short *wh*-questions, let us first look at how earlier studies such as Hasegawa (2008) and Fujiwara (2020) address similar phenomena in Japanese.

2.1 Hasegawa (2008)

Hasegawa (2008) notes that Japanese has short *wh*-phrase questions, which he refers to as matrix sluicing constructions.

- (23) a. A: *Hanako-ga nanika-o kat-ta.*
 H.-NOM something-ACC buy-PAST
 ‘Hanako bought something.’
 B: *Hontoo? Nani-o?*
 Really what-ACC
 ‘Really? What?’
 b. A: *Dareka-ga ki-masi-ta yo.*
 Someone-NOM come-POLITE-PAST SP
 ‘Someone came.’
 B: *E? Dare-ga?*
 yeah who-NOM
 ‘Yeah? Who?’

As we can see above, speakers of Japanese can use a single *wh*-phrase to construct a question sentence. According to Hasegawa, Japanese matrix sluicing constructions differ from embedded sluicing constructions in several aspects, one of which concerns island sensitivity.

(24) Embedded sluicing constructions in Japanese

- a. **Hanako-ga [Taro-ga nanika-o okut-ta zyosei]-o sagasitei-ru ga, nani-o (da) ka sir-anai.*
 ‘Hanako looks for the woman who Toro gave something to, but I do not know what.’
- b. **Taro-ga nanika-o tabe-ta kara Hanako-ga okot-ta rasii ga nani-o-ka wakar-ani.*
 ‘It seems that Hanako got angry because Taro ate something, but I don’t know what.’

(25) Matrix sluicing constructions in Japanese

- a. A: *Hanako-wa [Taro-ga nanika-o okut-ta zyosei]-o*
 H.-TOP T.-NOM something-ACC give-PAST woman-ACC
sagasitei-ru.
 look.for-PR
 ‘Hanako seems to be looking for a woman who Toro gave something to.’
 B: *Hontoo? Nani-o?*
 Really? What?
- b. A: *Taro-ga nanika-o tabe-ta kara Hanako-ga okot-ta*
 T.-NOM something-ACC eat-PAST because Hanako-NOM angry-PAST
rasii.
 seem
 ‘Hanako seems to have gotten angry because Taro ate something.’
 B: *Hontoo? Nani-o?*
 Really? What?

The grammaticality contrast shown above clearly indicates that the formation of embedded sluicing sentences is sensitive to island boundaries, while that of matrix sluicing constructions is not. In addition, (24) and (25) together illustrate another difference between embedded and matrix sluicing constructions in Japanese. In (24), *nani* ‘what’ has to be followed by the Q-morpheme *ka*; by contrast, this Q-morpheme is absent in (25aB) and (25bB). Adding this Q-morpheme to the short questions in (25) generates unacceptable sentences.

(26) *Hontoo? Nani-o (*ka)?*

- really what-ACC Q
 ‘Really? What?’

Given these facts, Hasegawa (2008) proposes that Japanese matrix sluicing constructions should be analyzed differently from their embedded counterparts.³ Following Lasnik's (2001) analysis that English matrix sluicing constructions are derived via movement and ellipsis, she proposes that the *wh*-phrase moves to the Spec of CP, followed by TP-ellipsis in Japanese matrix sluicing constructions. This analysis is depicted below.

(27) *Wh*-movement + TP-deletion

[_{CP} what_i [_{TP} Hanako [_{Adjunct} Taro _{t_i} ate because] angry seem] C]]

In short, under Hasegawa's (2008) framework, Japanese matrix sluicing constructions are analyzed on a par with their English counterparts.

2.2 Fujiwara (2020)

Instead of adopting this movement and deletion analysis, Fujiwara (2020) proposes a base-generation approach for Japanese matrix sluicing constructions.⁴ He notes several differences between matrix sluicing constructions and embedded ones, one of which concerns the presence of a copula in the former type of sentence.

(28) A: *John-wa nanika-o tabeteru rasii.*
John-NOM something-ACC is.eating seem
'I hear that John is eating something.'

B: *Nani-o des-yoo ne?*
what-ACC COP.POLITE-MOD TAG
'I wonder what.'

According to Fujiwara, the presence of a copula in (28B) suggests that the underlying structures of Japanese matrix sluicing constructions are cleft constructions, since one of the components of cleft sentences is a copula, though it is optional.⁵

3. Kuwabara (1996), Fukaya & Hoji (1999), Hiraiwa & Ishihara (2002), Kizu (2005), among others, adopt a cleft-based analysis for embedded sluicing constructions in Japanese.

4. Matrix sluicing constructions are called *matrix merger constructions* in Fujiwara (2020).

5. Abe (2015) also notes that copulas can appear in Japanese matrix sluicing constructions.

(i) A: *Hanako-ga nanika-o katte-kita yo.* (Abe 2015:75)
Hanako-NOM something-ACC bought
'Hakano bought something.'

B: *Honto? Nani-o da (ne)?*
really what-ACC be
'Really? What?'

Relating matrix sluicing constructions to cleft sentences is further evidenced by the fact that *-sika* cannot appear in either construction, as seen in (29) and (30).

- (29) A: *John-wa dareka-ni-sika awanakatta yo.*
 John-TOP someone-DAT-NPI not.met PRT
 ‘John didn’t meet anybody except someone.’
 B: **Dare-ni-sika (daroo ne)?*
 who-DAT-NPI MOD TAG
 ‘(I wonder) Except who?’
- (30) **[_{FinP} John-ga t_i awanakatta no]-wa Mary-ni-sika_i da.*
 John-NOM not.met Fin-TOP Mary-DAT-NPI COP
 Lit. ‘It is [except Mary]_i that John didn’t meet anybody t_i.’

In addition, Fujiwara notes that the case marker can be dropped in Japanese matrix sluicing constructions.

- (31) A: *John-ga nanika-o tabeteru rasii yo.*
 John-NOM something-ACC is.eating seem PRT
 ‘I hear that John is eating something.’
 B: *Nani (daroo ne)?*
 what MOD TAG
 ‘(I wonder) what?’

In (31B), *nani* ‘what’ is not immediately followed by the case marker *-o*. Given these facts, Fujiwara proposes that Japanese matrix sluicing constructions should be analyzed as follows.

- (32) *pro dare(-ga)/nani(-o)?* (Fujiwara 2020: 92)
 who-NOM/what-ACC
 Lit. ‘Who/What is *pro*?’

Fujiwara considers the *wh*-phrase in matrix sluicing constructions a predicate, which has a covert pronominal element *pro* as its argument, and this *pro* refers to the indefinite NP that appears in the antecedent sentence. Therefore, he claims that the sentence in (32) can be paraphrased as either of the following sentences.

- (33) a. *Dareka-tte dare(-ga)?*
 Someone-TOP who-NOM
 Lit. ‘Who is someone?’
 b. *Nanika-tte nani(-o)?*
 something-TOP what-ACC
 Lit. ‘What is something?’

In (33a) and (33b), the subject is predicated of the *wh*-phrase that follows it.

Given the fact that speakers of Mandarin Chinese can also respond to others by using a short *wh*-question, in the next section we shall examine whether we can apply one of the analyses discussed in this subsection to the corresponding Mandarin sentences.

3. Mandarin pseudo matrix sluicing constructions

In this section, we turn to the Mandarin short *wh*-phrase questions discussed in § 1. I first reveal the disadvantages of applying the movement and ellipsis analysis as well as the predication approach to Mandarin Chinese, and then present my own analysis.

3.1 Potential analyses

3.1.1 The movement and ellipsis analysis

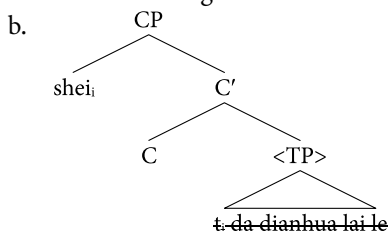
The first possibility that I would like to consider is the movement and ellipsis approach. As shown earlier, this analysis consists of two steps: first of all, movement that raises a *wh*-phrase to the periphery of the clause and, secondly, TP-ellipsis. If we use this analysis to derive some of the short *wh*-phrase questions seen earlier, they would have the following derivations.

(34) The derivation of the sentence uttered by Speaker B in (8):

a. *Shei da dianhua lai le?*

who hit telephone come SFP

‘Who is calling?’

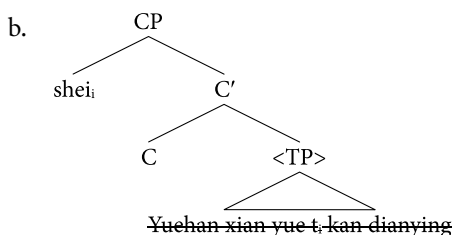


(35) The derivation of the sentence uttered by Speaker B in (9):

a. *Yuehan xiang yue shei kan dianying?*

John want invite who watch movie

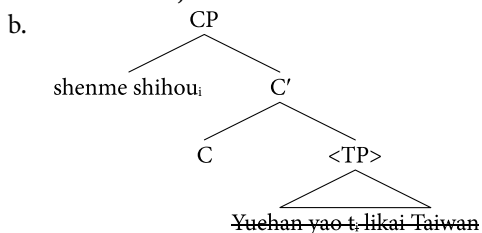
‘Who(m) does John want to invite to watch a movie?’



In these two constructions, after the *wh*-phrase *shei* ‘who’ moves out of TP to reach the CP domain, TP-ellipsis applies and it leaves the *wh*-phrase alone at the end of the derivation. In addition to the cases in (8) and (9), the movement and ellipsis analysis seems able to derive the sprouting responses in (18–21) as well, in which the sentence uttered by Speaker A does not contain an indefinite correlate. Let us take (18) as an illustration.

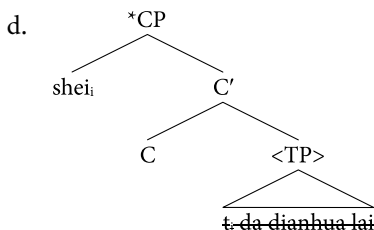
(36) The derivation of the sentence uttered by Speaker B in (18):

- a. *Yuehan yao shenme shihou likai Taiwan?*
 John will what time leave Taiwan
 ‘When will John leave Taiwan?’



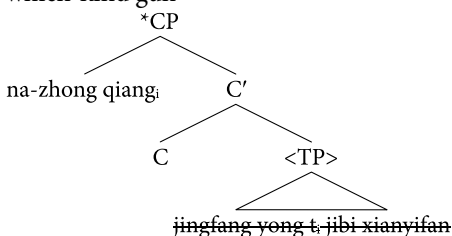
As we can see above, we can attribute the felicity of the short *wh*-question *shenme shihou* ‘when’ in (18b) to the analysis that moves this *wh*-phrase from within its underlying structure to the Spec of CP and then deletes the TP. However, applying the movement and ellipsis analysis to derive Mandarin short *wh*-questions faces two challenges, the first of which concerns the fact that it fails to account for the ungrammaticality of the responses in sprouting cases like (16b) and (17b).

- (37) a. *Dianhua xiang-le.*
 telephone ring-ASP
 ‘The telephone is ringing.’
 b. *Shei da dianhua lai?*
 who hit telephone come
 ‘Who is calling?’
 c. **Shei?*
 who
 Intended meaning: ‘Who is calling?’



Note that the *wh*-phrase *shei* ‘who’ cannot serve as a felicitous response to (37a), but responding to it with the full sentence shown in (37b) is perfectly acceptable. If we apply the movement and ellipsis analysis to (37c) and assume that this *wh*-phrase is derived from an underlying structure similar to (37b), we are supposed to get a felicitous response. Nevertheless, this is contra the fact. Likewise, the movement and ellipsis approach expects Speaker B’s utterance in (17) to be acceptable, which is not the case.

- (38) a. *Jingfang jibi-le xianyifan.*
 police kill-ASP suspect
 ‘The police killed the suspect.’
 b. *Jingfang yong na-zhong qiang jibi xianyifan?*
 police use which-kind gun kill suspect
 ‘Which kind of gun did the police use to kill the suspect?’
 c. **Na-zhong qiang?*
 which-kind gun
 d.



The short *wh*-phrase in (38c) cannot be used to respond to (38a), but the longer interrogative sentence in (38b) can. This fact, again, demonstrates the inability of the movement and ellipsis analysis to account for the unacceptability of sprouting cases like (38c).

Another challenge of applying the movement and ellipsis analysis to Mandarin short *wh*-questions is that the structure it constructs conflicts with the fact that Mandarin Chinese is a non-preposition-stranding language (Huang 1982; 1991).

- (39) a. *Ni gen Lisi dajia-le ma?* (Huang 1991:312)
 you with Lisi fight-ASP PRT
 'Did you fight with Lisi?'
 b. *Meiyou, wo meiyou gen *(ta) dajia.*
 no I not with him fight
 'No, I didn't fight with him.'

Huang (1991) notes that if the pronoun *ta* 'him' that immediately follows the preposition *gen* 'with' is dropped in (39b), the resulting sentence becomes ungrammatical. As a result, if we use the movement and ellipsis analysis to derive what the second speaker utters in the following example, preposition-stranding occurs.

- (40) a. *Yuehan gen mouren jie hun le.*
 John with someone get married SFP
 'John got married to someone.'
 b. *Shei?*
 who
 Intended meaning: 'Who is the person that John got married to?'
 c. [_{CP} [*Shei*]_i C [_{TP} ~~*Yuehan gen-t_i jie hun le*~~]]?
 who John with get married SFP

In the construction shown above, *shei* 'who' originates as the object of the preposition *gen* 'with.' Once this *wh*-phrase moves to the Spec of CP, the preposition that precedes it becomes stranded prior to TP-ellipsis, which is prohibited in Mandarin Chinese and should thus generate an unacceptable sentence. Nevertheless, this prediction is not borne out, since *shei* 'who' is a felicitous response in this case. One more example is provided below.

- (41) a. *Mali xiang zai mou-jian jiaotang jie-hun.*
 Mary want in some-CL church get-married
 'Mary wants to get married in a church.'
 b. *Na-jian jiaotang?*
 which-CL church
 Intended meaning: 'In which church does Mary want to get married?'
 c. [_{CP} [*Na-jian jiaotang*]_i C [_{TP} ~~*Mali xiang zai-t_i jie-hun*~~]]
 which-CL church Mary want in get-married

(41c) presents one possible analysis of (41b). Similar to what we saw earlier, the preposition *zai* 'in' is stranded after its complement *na-jian jiaotang* 'which church' moves to the edge of CP. Although the preposition *zai* 'in' is stranded, the use of *na-jian jiaotang* 'which church' as a response is still acceptable. This fact suggests that the movement that causes the preposition to be stranded might

not happen in the derivation of the short response in (41b), which weakens the possibility of applying the movement and ellipsis analysis to the type of sentence discussed here. One of the reviewers suggested that akin to the island repairing effects noted in Merchant (2004), the acceptability of (40b) and (41b) might be attributed to the TP-ellipsis that makes the stranded preposition disappear at PF. This assumption, however, is not theory-internally and empirically supported.

One major assumption in Merchant (2004) is that the absence or presence of island effects is associated with whether island violations are detectable in pronounced structures or not (Ross 1969; Chomsky 1972; Uriagerega 1999; Kennedy & Merchant 2000; Merchant 2001, 2003; Johnson 2002, among others); if ellipsis can erase all defective traces that are the result of island-escaping movement, then the resulting structure is well-formed; if not, an ungrammatical sentence is generated. This analysis amounts to saying that what matters to the grammaticality of a sentence is its representation at PF. Merchant (2004) mentions one phenomenon that is pertaining to what we discuss here, according to which preposition-stranding languages behave differently from non-preposition-stranding ones with respect to the use of bare NP fragments.


- (42) English
 a. Who was Peter talking with?
 b. Mary.

- (43) Swedish
 a. *Vem har Peter talat med?*
 who has Peter talked with
 b. Mary.

English and Swedish are preposition-stranding languages, so they can use bare NPs as the fragment answer. By contrast, non-preposition-stranding languages like Russian and Bulgarian can only use PPs as fragment answers.

- (44) Russian
 a. *S kem ona govorila?*
 with whom she spoken
 b. S Ivanom.
 c. *Ivanon.
- (45) Bulgarian
 a. *S koj e govorila Anna?*
 with who AUX spoken Anna
 b. S Ivan.
 c. *Ivan.

As we can see in (44) and (45), speakers of Russian and Bulgarian are not allowed to use bare NPs as the response. Merchant (2004) considers this fact a piece of evidence supporting the analysis that fragment answers are derived via movement and ellipsis. Under this framework, the response in (44c) is derived as follows.

- (46) [_{FOCP} Ivanon_i [_{TP} S — t_i — ~~ona~~ — ~~govorila~~]].
- 

If movement and ellipsis could save a structure that contains an unwelcomed stranded preposition at some point of the derivation in a non-preposition-stranding language, speakers of Russian were supposed to be able to use *Ivanon* as the response to (44a). Nevertheless, this is not the case, which suggests that whether a preposition can be stranded or not in a given language is a derivational constraint, rather than a representational one. Along the same lines, the acceptability of (40b) and (41b) cannot be attributed to TP-ellipsis, either.⁶

6. One of the reviewers notes that in addition to (40b) and (41b), speakers of Mandarin Chinese can also use the following questions to respond to (40a) and (41a).

- (i) a. *Gen shei?*
with who
'With who(m)?'
b. *Zai na-jian jiaotang?*
in which-CL church
'In which church?'

The responses shown above differ from (40b) and (41b) in that they are composed of a PP, rather than an NP. The reviewer argues that these short PP questions could be derived via movement and ellipsis. For instance, the short question in (ia) might have the following derivation.

- (ii) [_{CP} [*Gen shei*]_i C [_{TP} *Yuehan t_i jie hun le*]]?
With who John get married SFP

As we can see above, no preposition gets stranded in the derivation. Given this idea, coupled with the fact that the responses in (ia) and (ib) are acceptable in Mandarin Chinese, the reviewer suggests that there might be an empty preposition preceding *shei* 'who' and *na-jian jiaotang* 'which church' in (40b) and (41b), and we could further assume that this sequence of an empty preposition + *wh*-phrase is fronted to the beginning of the sentence prior to TP-ellipsis. This idea is depicted below.

- (iii) [_{CP} [_{PP} *Prep. shei*]_i C [_{TP} *Yuehan t_i jie hun le*]]?
who John get married SFP

However, assuming the existence of an empty preposition raises more questions than it allays. To name but a few: What is the nature of this empty preposition?, in what construction can it appear?, and why can it become 'empty' when the response containing it is preceded by a sentence in which the corresponding preposition is overt? In order to avoid these problems, I still

Given these considerations, I propose not to use the movement and ellipsis approach to derive Mandarin short *wh*-questions, since this analysis cannot treat sprouting cases like (16–17) and (18–21) in a systematic way. In addition, it fails to account for the co-existence of the use of *wh*-questions like (40b) and (41b) and the fact that Mandarin Chinese is a non-preposition-stranding language. Now, let us turn to the second possible analysis, which is a base-generation approach.

3.1.2 The base-generation approach

The base-generation approach that I mention here assumes the existence of an empty category which precedes everything else in the same clause. As we saw in § 1, Wei (2004) adopts this approach for Mandarin pseudo-sluicing constructions. Adams (2004) proposes a similar analysis.

- (47) John bought [a specific gift]₁ for his girlfriend,
danshi wo bu zhidao [pro₁ shi shenme].
 but I not know copula what
 ‘...but I don’t know what that was.’

In the structure above, *shi* is preceded by a *pro* which, according to Adams (2004), is linked to the indefinite NP in the preceding sentence.

The base-generated *pro* analysis for Mandarin pseudo-sluicing constructions gains support from several pieces of evidence, one of which concerns the relationship between the *pro* and its antecedent NP.

- (48) *Zhangsan yijing chi-le *(yixie-dongxi), dan wo bu zhidao shi shenme.*
 Zhangsan already eat-ASP some-thing but I not know be what
 ‘Zhangsan has already eaten (something), but I don’t know what.’
 (Wei 2004: 229)

- (49) **Wo gege zhengzai jieqia [e]- caicai kan shi shei.*
 my brother prog receive guess look is who
 ‘My brother is receiving (usually customers)-guess who?’⁷ (Adams 2004: 4)

Both Adams (2004) and Wei (2004) note that once the NP to which the *pro* refers is dropped, the resulting sentence becomes ungrammatical.

Adams (2004) further argues that the *pro* analysis is evidenced by the fact that this *pro* can be phonetically realized.

view the responses in (40b) and (41b) as consisting of an NP. As we shall shortly see, the analysis that will be proposed later not only accounts for the derivation of the responses in (40b) and (41b) as well as those in (ia) and (ib), but also respects the fact that prepositions cannot get stranded in Mandarin Chinese.

7. The original pinyin for the verb *receive* in Adams (2004) is *jiecia*.

- (50) *Amei mai le yi-jian liwu, danshi ta mei gaosu wo na shi shenme.*
 Amei buy ASP one-CL present but she not tell I that COP what
 ‘Amei bought a present, but she didn’t tell me what that was.’

In the sentence above, the constituent preceding *shi* is *na* ‘that’, which is considered the overt counterpart of the covert *pro* in Adams (2004).

Since no movement is involved in the formation of Mandarin pseudo-slicing constructions, island effects do not arise.

- (51) a. *Lisi [yinwei Amei mai le yi-jian dongxi] bu gaoxing, danshi ta bu shuo shi shenme.*
 Lisi because Amei buy ASP one-CL thing not happy but he not say
shi shenme.
 COP what
 ‘Lisi was unhappy because Amei bought something, but she didn’t say what.’ (Adams 2004: 9)
- b. [?]*[You ren_i lai bangzhu] bijiao hao, danshi wo bu zhidao [pro_i shi shei].*
 have people come help more good but I not know be
shei].
 who
 ‘That there is someone coming to help is better, but’ (Wei 2004: 251)

Although the sentence in (51a) contains an adjunct island and the one in (51b) a sentential subject island, both sentences are acceptable. This fact suggests that the *wh*-phrase that appears after *shi* in the second conjunct does not reach its surface position via movement.

Given the facts that (i) the antecedent declarative sentences in (16) and (17) do not have an indefinite NP as the correlate of the *wh*-response and (ii) such responses are prohibited in these two cases, it seems that we can assimilate short *wh*-phrase questions to Mandarin pseudo-slicing constructions, attributing the unacceptability of (16b) and (17b) to the lack of an indefinite NP in the antecedent sentence. Moreover, as illustrated in the acceptable sprouting cases in (18–21), when the short *wh*-phrase question is composed of a *wh*-phrase like *shenme shihou* ‘when’ or *zai nali* ‘where’, an indefinite correlate is not required in the preceding sentence, which is also similar to Mandarin pseudo-slicing constructions that have the same *wh*-phrase as one of the components. Two relevant examples mentioned in Wei (2004) are reproduced below.

- (52) *Zhangsan gang likai, danshi wo bu zhidao shenme-shihou.*
 Zhangsan just leave but I not know what-time
 ‘Zhangsan just left, but I don’t know when.’

- (53) *Zhangsan chu shi le, danshi wo bu zhidao zai-nali.*
 Zhangsan have accident ASP but I not know Where
 ‘Zhangsan had an accident, but I don’t know where.’

Wei (2004) accounts for the grammaticality of (52) and (53) by proposing that *shenme shihou* ‘when’ and *zai nali* ‘where’ are predicative *wh*-phrases, which establish a modification relation with the *pro* that appears to the left of it. Thus, the second conjunct of (52) has the following structure.⁸

- (54) *danshi wo bu zhidao pro shenme-shihou.*
 but I not know what-time

Given the strong similarity between the use of a *wh*-phrase as a question in (18–21) and the pseudo-sluicing constructions in (52) and (53), we may analyze the short *wh*-phrase question in (18b) as (55).

- (55) *pro shenme shihou?*
 what time
 Intended meaning: ‘When will he leave Taiwan?’

In (55), there is also a *pro* that precedes the *wh*-phrase *shenme shihou* ‘when’. Nevertheless, I argue that the *pro* analysis cannot be applied to short *wh*-phrase questions, since this type of question behaves differently from pseudo-sluicing constructions in several aspects.

First, as mentioned earlier, Wei (2004) notes that predicative *wh*-phrases that appear in pseudo-sluicing constructions can optionally be preceded by *shi*.

- (56) a. *Zhangsan gang likai, danshi wo bu zhidao shi shenme-shihou.*
 Zhangsan just leave but I not know SHI what-time
 ‘Zhangsan just left, but I don’t know when.’
 b. *Zhangsan chu shi le, danshi wo bu zhidao shi zai-nali.*
 Zhangsan have accident ASP but I not know SHI where
 ‘Zhangsan had an accident, but I don’t know where.’

If we insert *shi* into (52) and (53), the resulting sentences, shown in (56a) and (56b), are still acceptable. By contrast, adding *shi* to ‘predicative’ short *wh*-phrases that are independently used as question sentences gives rise to ungrammaticality.

- (57) a. *Yuehan yao likai Taiwan le.*
 John will leave Taiwan SFP
 ‘John will leave Taiwan soon.’

8. See also Wei (2011) and Li & Wei (2017) for similar analyses.

- b. ??*Shi shenme-shihou?*
 SHI what-time
 Intended meaning: ‘When will he leave Taiwan?’
- (58) a. *Wo mingtian xiang qu guangjie.*
 I tomorrow want go shopping
 ‘I want to go shopping tomorrow.’
 b. **Shi ji dian?*
 SHI what time
 Intended meaning: ‘What time will you go shopping tomorrow?’
- (59) a. *Yuehan yishi-le ta-de xinyong ka.*
 John lose-ASP his credit card
 ‘John lost his credit card.’
 b. **Shi zai nali?*
 SHI in where
 Intended meaning: ‘Where did he lose his credit card?’
- (60) a. *Yuehan zuotian di-chu ci-cheng.*
 John yesterday hand-out resignation-letter
 ‘John handed out the resignation letter yesterday.’
 b. **Shi weishenme?*
 SHI why
 Intended meaning: ‘Why did he hand out the resignation letter?’

Compared to the pseudo-slucing constructions in (56), adding *shi* to the short *wh*-phrase questions seen in (18–21) yields short sentences that cannot be felicitously used as a follow-up question, as shown in (57–60) (please refer to the Appendix for the result of a judgment test).⁹

9. Fujiwara (2020) notes that in Japanese, the use of *wh*-phrase as a response does not always require the presence of a correlate in the antecedent clause, which constitutes sprouting responses.

- (i) a. A: *John-ga tabeteru yo.*
 John-NOM is.eating PRT
 ‘John is eating.’
 B: *Nani-o?*
 what-ACC
 ‘What?’

Second, as noted in Wei (2004; 2011), when the *wh*-phrase that appears in a pseudo-sluicing construction is a non-predicative *wh*-phrase, like *shei* ‘who’ or *shenme* ‘what’, *shi* is required. (3a) is repeated below as (61).

- (61) *Zhangsan kandao mouren, danshi wo bu zhidao *(shi) shei.*
 Zhangsan see someone but I not know is who
 ‘Zhangsan saw somebody, but I don’t know who.’

Dropping *shi* in sentences like (61) generates an unacceptable sentence. However, the short *wh*-phrase question *shei* ‘who’ in (8–12) does not require the presence of *shi*, yet it is a grammatical question sentence.¹⁰ (10) is repeated as (62), which is shown below.

- (62) a. *You-ren da dianhua lai le.*
 have-person hit telephone come SFP
 ‘Someone is making a phone call.’
 b. *Shei?*
 who
 Intended meaning: ‘Who is the person making the phone call?’

Unlike the *shei* ‘who’ in (61), the one used as a response in (62b) is not and does not have to be preceded by *shi*. This fact, in conjunction with the mutual exclu-

-
- b. A: *John-ga naiteru yo.*
 John-NOM is.crying PRT
 ‘John is crying.’
 B: *Doko-de?*
 where-at
 ‘Where?’

Fujiwara proposes to analyze these responses on a par with embedded sluicing sentences, since they can accommodate a copula.

- (ii) A: *John-ga tabeteru yo.*
 John-NOM is.eating PRT
 ‘John is eating.’
 B: *Nani-o des-u ka?*
 what-ACC COP.POLITE-PRES Q
 ‘What?’

Given this fact and others, Fujiwara claims that the responses in (i) have cleft sentences as their underlying structures. However, this analysis is not applicable to the Mandarin (sprouting) short *wh*-questions we saw in the main text, since they are not allowed to be accompanied by the copula *shi*.

10. It is not the case that all short *wh*-phrase questions can never contain *shi*. Certain *wh*-phrases can be preceded by *shi* in short *wh*-phrase questions. As we shall see shortly, they are better to be analyzed differently from those that do not contain *shi*.

sion between *shi* and the predicative *wh*-phrase observed in (57–60), suggests that unlike Mandarin pseudo-slucing constructions, there is no empty category in Mandarin short *wh*-phrase questions that needs to be predicated or modified. In other words, we cannot analyze Mandarin short *wh*-questions in terms of the base-generated *pro* analysis.

To sum up, in this section I discussed two possible analyses for short *wh*-phrase responses in Mandarin Chinese. Given the fact that each of these approaches faces different challenges, neither can account for the derivation of short *wh*-phrase questions in Mandarin Chinese. In the next subsection, I shall provide an alternative analysis that better captures the syntactic properties of this type of question.

3.2 Proposal

The analysis that I adopt here is based on Williams (1977) and Chung et al. (1995), in which LF-copying is used to account for the derivation of VP-deletion and sluicing constructions in English.

According to Williams (1977), there are two types of grammar: Sentence Grammar and Discourse Grammar. The former is responsible for constructing the underlying structure, the surface structure, and the logical form of a sentence, while the latter operates on the logical form of a sentence. Thus, Discourse Grammar applies after Sentence Grammar. Williams (1977) deals with VP-deletion sentences across speakers in the following way.

- (63) A: Who can do it?
B: John can.

Williams (1977) argues that the interpretation of the second sentence in (63) involves copying the logical form of the antecedent VP to the empty VP position following the modal *can* in (63B).

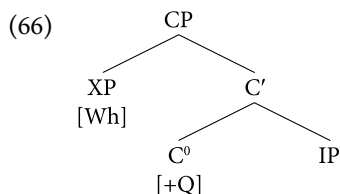
- (64) A: Who $[[t]_{NP} \text{ can } [[do]_V [[it]_{NP}]_{VP}]_S$
B: $[_S \text{ John can } [[\Delta]_V][[\Delta]_{NP}]_{VP}]_S$

Based on Wasow (1972), Williams claims that the deltas are occupied by the terminal nodes of a maximal projection, rather than the maximal projection itself, so the V and N nodes in (64B) are filled with this symbol. When applying the LF-copying rule, which is called the *VP Rule* in Williams (1977), the contents of the V and N nodes in the question sentence are copied into the corresponding empty V and N positions in Speaker B's utterance.

- (65) A: Who $[[t]_{NP} \text{ can } [[do]_v [[it]_N]_{NP}]_{VP}]_S$
 B: $[_S \text{ John can } [[do]_v] [[it]_N]_{NP}]_{VP}]_S$

As a result, (64B) becomes (65B), which is an interpretable structure at LF.

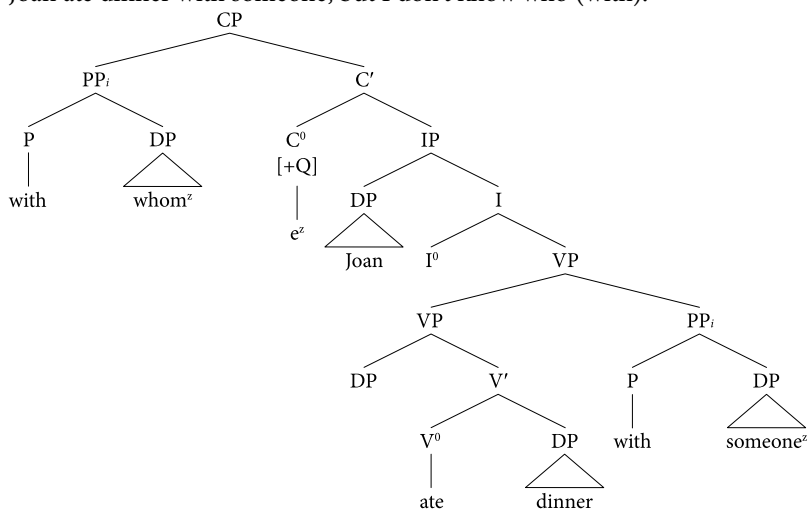
Chung et al. (1995) also embrace LF-copying, according to which a sluicing construction contains a *wh*-phrase in the left periphery of CP, and the head of CP and its complement IP are empty.



(Chung et al. 1995: 242)

As we can see in (66), except for the *wh*-phrase that appears in the Spec of CP, nothing is overtly realized in the structure. Chung et al. (1995) claim that the structure shown in (66) is not interpretable, since the *wh*-phrase in the Spec of CP does not bind anything and the IP does not have any content. Thus, they propose that a mechanism called *IP recycling* has to take place, which copies the internal structure of the antecedent IP into the empty IP position. Given this analysis, the sluice in (67a) ends up with the structure in (67b) at LF.

- (67) a. Joan ate dinner with someone, but I don't know who (with).
 b.



Following Berman's (1991) idea that *wh*-questions consist of a tripartite quantification structure, Chung et al. (1995) consider the interpretation of (67b) no different from that of full questions, since this structure also contains three cru-

cial elements for interpretation: a restrictive clause, an interrogative operator and a nuclear scope. The restrictive clause is supplied by the *wh*-phrase in the Spec of CP, which is semantically bound by the interrogative operator [+Q] on C. As for the nuclear scope, it refers to the IP copied from the IP in the antecedent clause via IP-recycling, in which the indefinite NP *someone* is viewed as a variable bound by the *wh*-phrase located in the Spec of CP by co-indexation. Consequently, the propositional function [*Joan ate dinner with z*] is yielded, and the binding relationship between the *wh*-phrase and *someone* ensures that the former gets interpreted as if it occupied the syntactic position of the indefinite NP. Chung et al. (1995) claim that the most important element under this framework is the existence of an indefinite NP in the antecedent clause, since such NPs do not have consistent interpretations and thus are considered free variables (Heim 1982, 1987; Kamp 1984).¹¹

Based on Williams (1977) and Chung et al. (1995), I propose to account for the derivation of Mandarin short *wh*-phrase questions in terms of LF-copying. Let us take (8) as an illustration, which is repeated below.

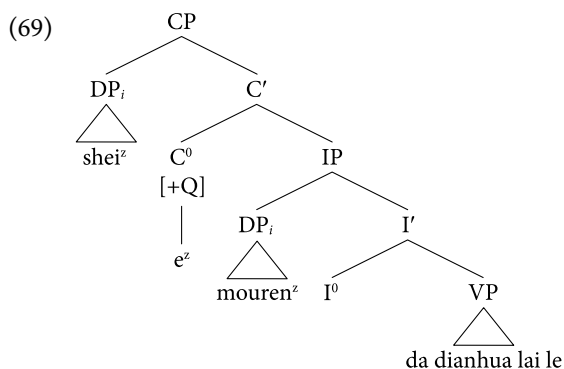
- (8) a. *Mouren da dianhua lai le.*
 someone hit telephone come SFP
 ‘Someone is calling.’
 b. *Shei?*
 who
 ‘Who is the person making the phone call?’

Assuming that the *wh*-phrase that appears in short *wh*-questions like (8b) is base-generated in the Spec of CP, I propose that (8b) has (68) as its underlying and surface structure.

- (68) [_{CP} *shei* [_{IP} Δ]]?

In order to get interpreted, the empty IP in (68) cannot remain contentless at LF.

11. This paper does not intend to argue that LF-copying is a better solution to sluicing constructions in English. Please refer to Merchant (2006) for some concerns raised by the application of this analysis in English.

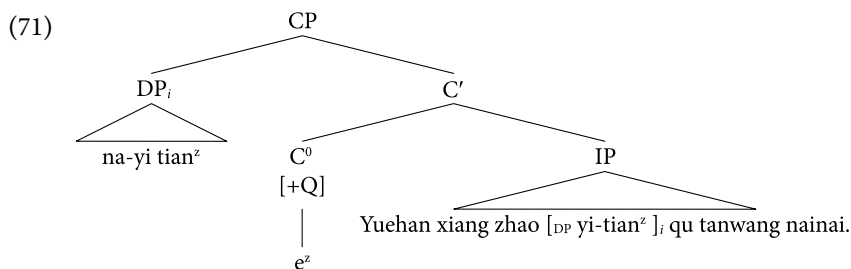


After IP-recycling applies, the empty IP in (69) is supplied with an internal structure, which is copied from the antecedent IP in (8a). Along the lines of Chung et al. (1995), the structure in (69) is interpretable, since the interrogative operator binds the *wh*-phrase *shei* ‘who’ which in turn binds the variable in the Spec of the copied IP. As a result, the *wh*-phrase *shei* ‘who’ is interpreted as if it were sitting in the position of *mouren* ‘someone’. (14), repeated below, can be analyzed in the same way.

- (14) a. *Yuehan xiang zhao yi-tian qu tanwang nainai.*
 John want find one-day go visit grandmother
 ‘John wants to find one day to visit Grandmother.’
 b. *Na-yi tian?*
 which-one day
 Intended meaning: ‘On which day does John want to visit grandmother?’

(14b) has the structure shown in (70) as its D-Structure and S-Structure, in which the IP is empty.

(70) [_{CP} *na-yi tian* [_{IP} Δ]?



As we can see in (71), once LF-copying takes place, the *wh*-phrase *na-yi tian* ‘which day’ in the Spec of CP is followed by an IP with internal structure, which turns the entire construction interpretable, in the sense of Chung et al. (1995).

The derivations of short *wh*-questions shown in (69) and (71) sharply contrast with how Lasnik (2001) and Hasegawa (2008) analyze matrix sluicing constructions in English and Japanese: the formation of Mandarin short *wh*-phrase questions does not involve movement and ellipsis, while the analyses proposed for the corresponding sentences in English and Japanese do. As we can see above, the *wh*-phrases *shei* ‘who’ and *na-yi tian* ‘which day’ are base-generated in the Spec of CP and remain there throughout the derivation. Given this fact, I call Mandarin short *wh*-phrase questions *pseudo matrix sluicing constructions*.¹²

One advantage of this analysis is that we can account for the contrast between the sprouting cases in (16–17) and those in (18–21). (16) and (18) are repeated below.

- (16) a. *Dianhua xiang-le.*
 telephone ring-ASP
 ‘The telephone is ringing.’
 b. **Shei?*
 who
 Intended meaning: ‘Who is calling?’
- (18) a. *Yuehan yao likai Taiwan le.*
 John will leave Taiwan SFP
 ‘John will leave Taiwan soon.’
 b. *Shenme shihou?*
 what time
 Intended meaning: ‘When will he leave Taiwan?’

Although (18) looks similar to (16) in that the sentence uttered by the first speaker lacks an indefinite correlate, it differs from the latter in that the second speaker in (18) can use a *wh*-phrase to respond to the first speaker while the one in (16) can-

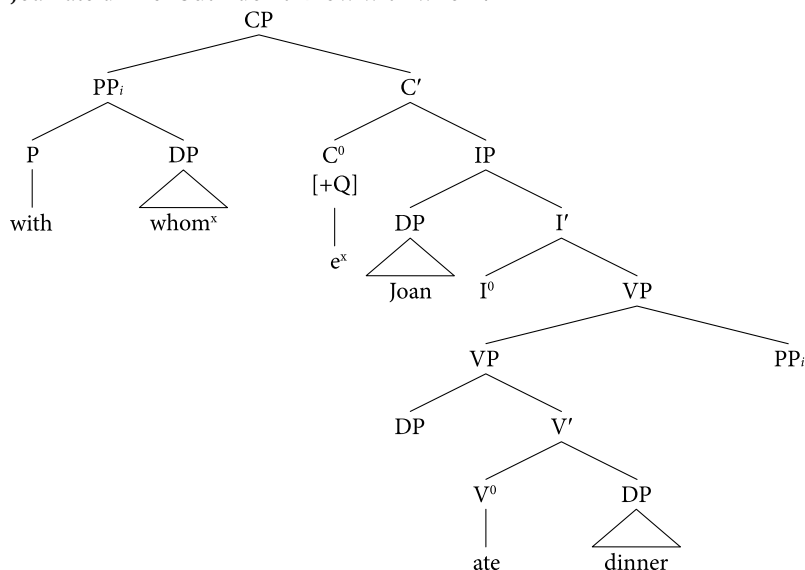
12. At first glance, the LF-copying analysis advocated here appears to be powerful, but in fact it is subject to various conditions. According to Williams (1977), there are two types of grammars, one of which is Sentence Grammar and the other Discourse Grammar. The former type of grammar is responsible for generating the deep structure, the surface structure, and the logical form of a sentence. By contrast, Discourse Grammar applies to the logical form of a sentence produced by Sentence Grammar, and it only operates across sentences. In (64) and (65), we saw how the VP rule applies across sentences; in this subsection, we also see that the LF-copying analysis based on IP-recycling operates across sentences in Mandarin Chinese. What these LF-copying mechanisms have in common is that they capture the structural parallelism between the antecedent sentence and the one following it. That is, the LF-copying analysis does not randomly copy the logical form of any sentences that have been uttered; instead, only the one that immediately precedes the sentence containing the missing part(s) can be considered a source of the copied form. The LF-copying analysis, thus, not only is rooted in certain theoretical assumptions, but also is constrained by the domain to which it can apply.

not. The (in)felicitous use of a *wh*-phrase as a question in these two cases essentially comes down to an issue concerning a property of the *wh*-phrase shown in the response.

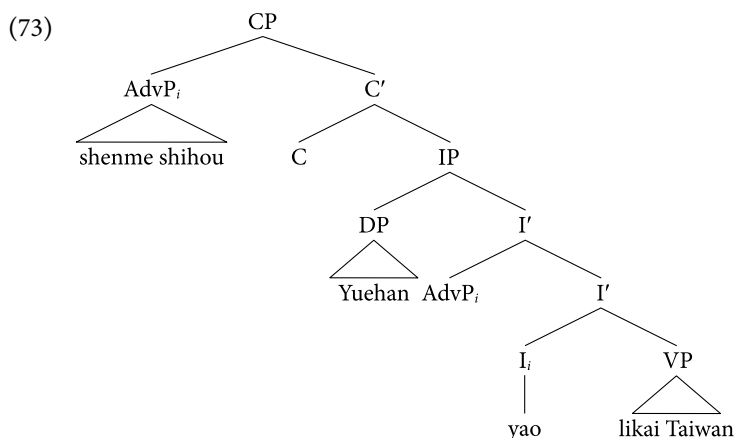
Chung et al. (1995) propose that when the *wh*-phrase in the sluice does not have any correlate in the antecedent sentence, an extra position can be sprouted for it to bind at LF in some cases.

(72) a. Joan ate dinner but I don't know with whom.

b.



In (72b), the PP_i adjoining to VP is created to be bound by the *wh*-phrase *with whom* in the Spec of CP. Given the fact that (18–21) behave identically in using a *wh*-adjunct as a response, I attribute the felicitous use of these *wh*-phrases to the fact that an extra position can be sprouted in these cases, so that a variable is available for the *wh*-phrase to bind in the structure. Thus, (18b) has the following representation at LF.



The extra AdvP position adjoining to I' in (73) is created by sprouting and serves as the bindee of the AdvP base-generated in the Spec of CP.

Chung et al. (1995) further argue that sprouting does not apply without restrictions; it is only possible in the following two situations: (a) the *wh*-phrase in the sluice is an adjunct which does not have a correlate (either overt or covert) in the antecedent sentence; (b) the *wh*-phrase in the sluice corresponds to an implicit argument of the main verb used in the antecedent sentence.

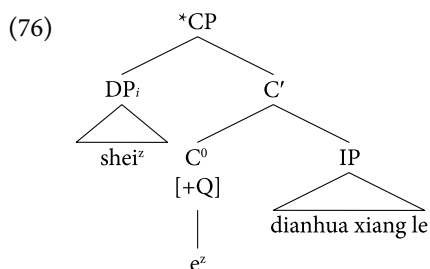
- (74) a. If Sam was going, Sally would know where. (Chung et al. 1995: 241)
 b. She's reading, I can't imagine what. (Chung et al. 1995: 242)

In (74a), the *wh*-phrase in the sluice is *where*, which is an adjunct, and there is no indefinite NP in the antecedent clause with which this *wh*-phrase can be connected; in (74b), the *wh*-phrase *what* is associated with an implicit argument of the verb *read* in the antecedent clause. This fact suggests that sprouting has to respect the lexical properties of the verb that appears in the preceding sentence and cannot change the argument structure of the original sentence. In cases like (72) and (73), sprouting does not alter the argument structures of the main verbs; it simply supplies an additional constituent in the structure. By contrast, the following sentences behave differently.

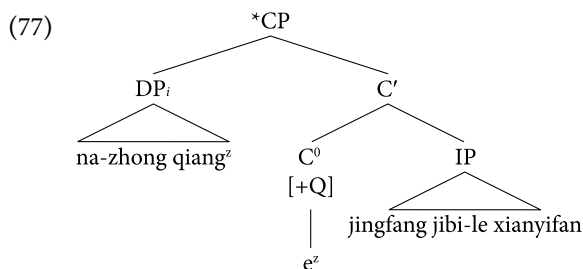
- (75) a. *John ate dinner but I don't know who(m). (Chung et al. 1995: 247)
 b. *She mailed John a letter, but I don't know to whom.

Given the fact that the verb *eat* in (75) is a two-place predicate, and its arguments have been already realized overtly by *John* and *dinner*, there is no extra DP that can be sprouted for *who(m)* to bind. Consequently, an ungrammatical sentence is yielded. The same reasoning can be applied to (75b). That is, the verb *mail* in

We may analyze Mandarin cases like (16) and (17) in a similar way. For instance, after LF-copying, (16b) has the following structure at LF.



Given the fact that *xiang* 'ring' is a one-place predicate and the only argument position of this verb has been fulfilled by *dianhua* 'telephone', it is impossible to create another DP position for *shei* 'who' to bind in (76). As a result, the *wh*-phrase *shei* 'who' in the Spec of CP is not semantically and syntactically linked to a position within the copied IP, which renders it uninterpretable. (17b) can be analyzed parallelly.



Since the only two argument positions of the verb *jibi* 'kill' are occupied by the DPs *jingfang* 'police' and *xianyifan* 'suspect', the *wh*-phrase *na-zhong qiang* 'which gun' in the Spec of CP cannot find anything to bind within the copied IP, and thus cannot get interpreted.

One of the reviewers was wondering if we could use the current analysis to account for the grammatical contrast between the following two examples.

- (78) A: *Mama zaoshang mai cai le.*
 mother morning buy vegetable SFP
 'Mother bought vegetables this morning'
 B: **Doushou qian?*
 how.much money
 'How much?'

- (79) A: *Cai-jia shangzhang le.*
 vegetable-price rise SFP
 'The price of the vegetables has risen.'
 B: *Doushou qian?*
 how.much money
 'How much?'

The *wh*-phrase *duoshao qian* 'how much?' cannot be used as a felicitous response to (78A), while it can to (79A). There are several factors that contribute to this phenomenon, one of which concerns the intrinsic properties of *doushao qian* 'how much money.'

Doushao qian 'how much money' can either serve as a complement of verbs like *hua* 'spend', or function as a predicate.

- (80) a. *Zhangsan hua-le doushao qian mai na-tai che?*
 Zhangsan spend-ASP how.much money buy that-CL car
 'How much money did Zhangsan spend buying that car?'
 b. *Zhe-ben shu doushao qian?*
 this-CL book how.much money
 'How much is this book?'

However, it cannot be used as an adjunct.

- (81) a. **Zhangsan duoshao qian mai fangzi le?*
 Zhangsan how.much money buy house SFP
 Intended meaning: 'How much did Zhangsan spend buying the house?'
 b. *Zhangsan shenme-shihou mai fangzi le?*
 Zhangsan what-time buy house SFP
 'When did Zhangsan buy the house?'
 c. *Zhangsan zai-nali mai fangzi le?*
 Zhangsan at-where buy house SFP
 'Where did Zhangsan buy the house?'

As we can see above, unlike temporal and locative adjuncts, *duoshao qian* 'how much money' cannot be inserted into the sentence *Zhangsan mai fangzi le* 'Zhangsan bought a house' to generate a grammatical sentence.

As mentioned earlier, sprouting cannot alter the argument structure of the verb used in the antecedent sentence. In (78A), the verb *mai* 'buy' is a two-place predicate that requires two arguments, one of which is *mama* 'mother' and the other *cai* 'vegetable' in this case. If a *wh*-phrase has to be felicitously used in the response, it can only be an adjunct. However, as we saw in (81a), *duoshao qian* 'how much money' cannot be used as an adjunct in Mandarin Chinese. Thus,

under Chung et al.'s (1995) framework, we can account for this fact by proposing that nothing can be sprouted in the recycled IP for the *wh*-phrase *duoshao qian* 'how much money' to bind, which consequently gives rise to an unacceptable response.

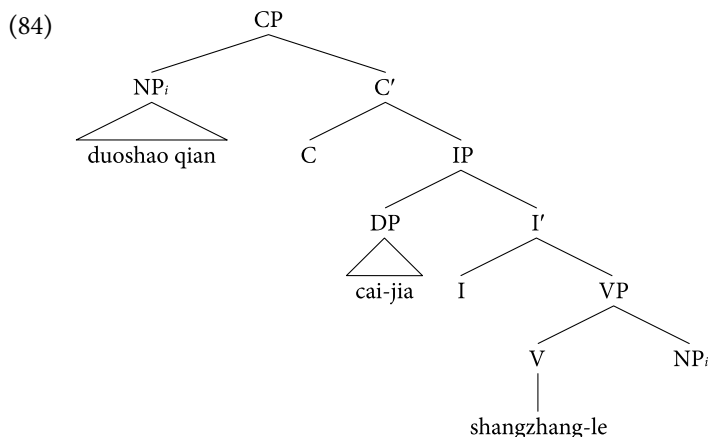
As for the acceptability of the response in (79B), I attribute it to the syntactic properties of *shangzhang* 'rise.' Three sentences whose main verb is *shangzhang* 'rise' are provided below.

- (82) a. *You-jia shangzhang-le.*
oil-price rise-ASP
'The price of oil has risen.'
- b. *You-jia shangzhang-le liang-kuai.*
oil-price rise-ASP two-dollar
'The price of oil rose by \$2 dollars.'
- c. *You-jia shangzhang-le duoshao qian?*
oil-price rise-ASP how.much money
'How much did the price of oil rise?'

The three sentences in (82) are fully grammatical, and the verb *shangzhang* 'rise' seems to pattern with the verb *chi* 'eat' in that it also optionally takes an NP as its complement.

- (83) *Zhangsan chi (fan) le ma?*
Zhangsan eat rice SFP Q
'Has Zhangsan eaten?'

As a result, we can claim that there is an implicit argument following *shangzhang* 'rise' in (82a), and account for the felicitous use of *duoshao qian* 'how much money' as a response to (79A) by saying that in (79A), one of the arguments of *shangzhang* 'rise' is not overtly present, so in the copied IP of (79B), an NP position which syntactically functions as the internal argument of *shangzhang* 'rise' is sprouted for the interrogative operator and *duoshao qian* 'how much money' to bind, which is illustrated below.



As we can see in (84), after sprouting applies at LF, an additional constituent, which is NP_i in this case, is generated to the right of the main verb for *duoshao qian* ‘how much money’ to bind.

In fact, the question in (79B) has another interpretation, which does not ask for by how much money the price of the vegetable has been increased, but for how much money the vegetable is now. I do not associate this interpretation of *duoshao qian* ‘how much money’ to whether sprouting takes place or not. Instead, I analyze this *duoshao qian* ‘how much money’ as having the following structure.

- (85) *ec duoshao qian?*
 how.much money

Under this interpretation, *duoshao qian* ‘how much money’ should be viewed as a predicate, which follows an empty category that can refer to either *cai* ‘vegetable’ or *cai-jia* ‘the price of the vegetable’ that appears in (79A). In other words, if we follow Huang’s (1984; 1989) analysis proposed for null subjects in Mandarin Chinese, we should consider the response in (79B) a sequence of constituents, which contains a topic-bound variable and the predicate *duoshao qian* ‘how much money’.

Given the analysis that the *wh*-phrase appearing in a pseudo matrix sluicing construction does not reach its surface position via movement, it is expected that it can be associated with a correlate in an island. This prediction is borne out by the following examples.

(86) a. Complex NP island:

A: *Wo tingdao [Yuehan zuo-wan qin-le yi-wei nide shiyou de chuanwen].*
 I hear John last-night kiss-ASP one-CL your roommate DE rumor

rumor

‘I heard a rumor that John kissed one of your roommates last night.’

B: *Shei?*

who

b. Adjunct island:

A: *[Ruguo Wang laoshi yaoqing mou-wei jiaoshou lai gei yanjiang],*
 if Wang teacher invite some-CL professor come give speech
xiaozhang hui hen bu gaoxing.

principal will very not happy

‘If Professor Wang invites some professor to give a talk, the Principal will not be very happy.’

B: *Na-wei jiaoshou?*

which-CL professor

‘Which professor?’

c. Coordinated structure:

A: *[Yuehan han yi-wei tade pengyou] yiqi qu Taipei le.*

John and one-CL his friend together go Taipei ASP

‘John and one of his friends went to Taipei together.’

B: *Shei?*

who

Intended meaning: ‘Who did John go to Taipei with?’

d. Subject island:

A: *[Yuehan yong mou-zhi Android shouji] bijiao hao.*

John use some-CL Android cellphone compare good

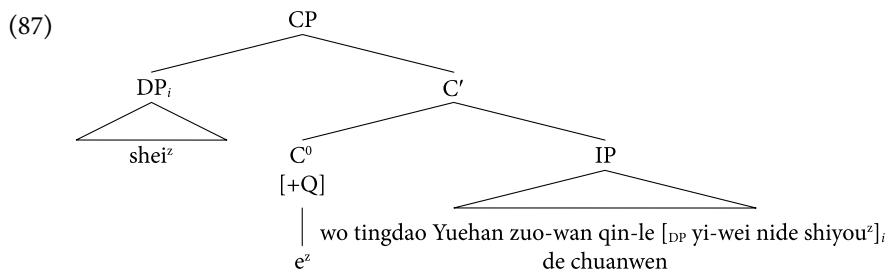
‘It is better for John to use some Android cellphone.’

B: *Na-zhi Android shouji?*

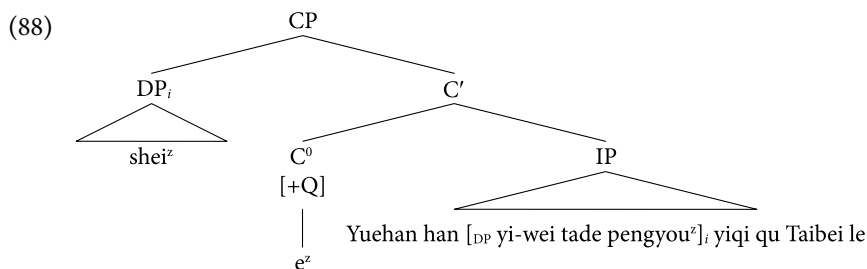
which-CL Android cellphone

‘Which Android cellphone?’

Recall that in §3.1.1, I ruled out the possibility of analyzing Mandarin short *wh*-questions in terms of movement and ellipsis, which amounts to saying that we cannot attribute the grammaticality of the responses in (86) to the island repairing effects observed in sluicing constructions in English (Merchant 2004). Since the movement and ellipsis analysis is no longer applicable to these cases, I propose to account for this phenomenon in terms of LF-copying. Under this framework, the response *shei* ‘who’ in (86aB) is said to have the following structure at LF.



The structure in (87) is derived via LF-copying the antecedent IP into the empty IP position following *shei* ‘who’. As we can see here, once the IP is supplied with an internal structure, the *wh*-phrase *shei* ‘who’ can get interpreted as if it occupied the position of the indefinite NP *yi-wei nide shiyou* ‘one of your roommates’. Since the *wh*-phrase does not move out of the Complex NP island, island effects do not surface. Likewise, the acceptability of the response in (86cB) can be accounted for as follows.



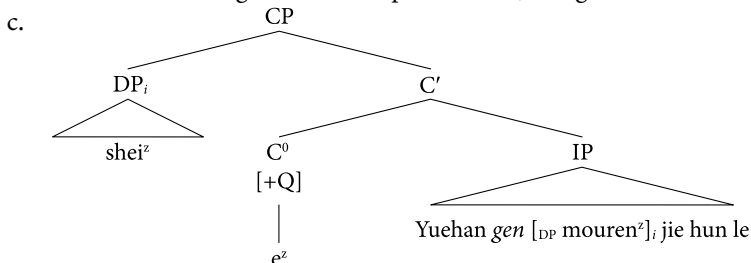
The *wh*-phrase *shei* ‘who’ is used to respond to a sentence that is composed of a coordinated structure. Given the analysis advocated in this paper, the *wh*-phrase *shei* ‘who’ in (88) binds an indefinite NP within the copied IP after LF-copying applies, which means that this *wh*-phrase appears to be interpreted in this position at LF. Since no syntactic movement out of the coordinated structure takes place, island effects are expected to be absent.

Another advantage of applying the LF-copying mechanism to derive Mandarin pseudo matrix sluicing constructions is that prepositions do not get stranded in the derivation of certain short *wh*-questions. Recall that in §3.1.1, I demonstrated how the movement and ellipsis approach leaves a preposition stranded in (40) and (41), which is supposed to be banned in Mandarin Chinese. The LF-copying analysis is superior to the movement and ellipsis approach in that it can account for the derivation of relevant responses without stranding prepositions.

- (89) a. *Yuehan gen mouren jie hun le.*
 John with someone get married SFP
 'John got married to someone.'

- b. *Shei?*
 who

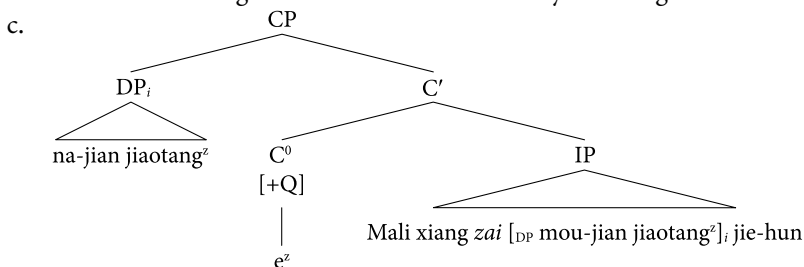
Intended meaning: 'Who is the person that John got married to?'



- (90) a. *Mali xiang zai mou-jian jiaotang jie-hun.*
 Mary want in some-CL church get-married
 'Mary wants to get married in a church.'

- b. *Na-jian jiaotang?*
 which-CL church

Intended meaning: 'In which church does Mary want to get married?'



With the help of LF-copying, extraction of the complement of the preposition *gen* 'with' and *zai* 'in' in (89) and (90) does not happen, so these prepositions do not get stranded. Meanwhile, since there exists an indefinite NP in the copied IP and it is bound by the *wh*-phrase in the Spec of CP, the entire structure becomes interpretable. In short, the LF-copying mechanism that I embrace here not only accounts for Mandarin short *wh*-questions like (89b) and (90b), but also respects the fact that Mandarin Chinese is a non-preposition-stranding language.

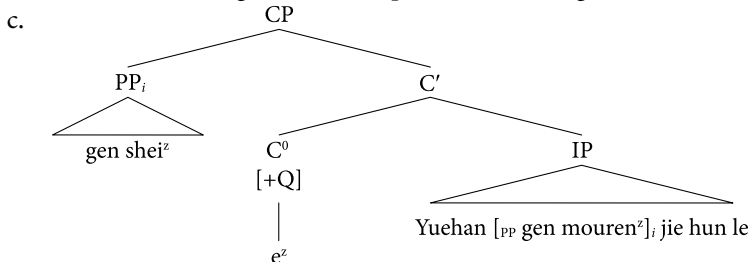
The proposed analysis can also be used to deal with the short PP questions noted by one of the reviewers.

- (91) a. *Yuehan gen mouren jie hun le.*
 John with someone get married SFP
 'John got married to someone.'

- b. *Gen shei?*

with who

Intended meaning: 'Who is the person that John got married to?'



- (92) a. *Mali xiang zai mou-jian jiaotang jie-hun.*

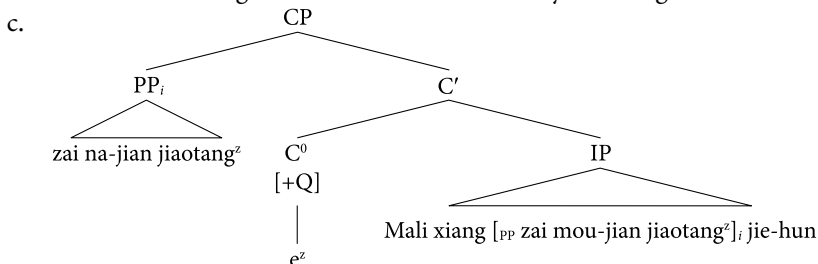
Mary want in some-CL church get-married

'Mary wants to get married in a church.'

- b. *Zai na-jian jiaotang?*

in which-CL church

Intended meaning: 'In which church does Mary want to get married?'



As mentioned in footnote 6, speakers of Mandarin Chinese can also use a PP question to respond to (91a) and (92a). Under the current framework, we can account for these phenomena by proposing that the short PP questions in (91b) and (92b) are base-generated in the Spec of CP, and they bind a corresponding PP within the copied IP at LF, by which the *wh*-phrase in the left periphery of the entire sentence is semantically linked to the indefinite NP that appears in the recycled IP. Consequently, an interpretable structure is generated.

The last issue we need to deal with concerns the presence of *shi* in certain short *wh*-questions. As mentioned earlier, short *wh*-phrase questions like *shenme shihou* 'when' or *weishenme* 'why' cannot be preceded by *shi*, but *shi* in fact can be placed in front of short *wh*-phrase questions composed of *wh*-phrases like those in (8–15).

- (93) a. *You-ren da dianhua lai le.*
have-person hit telephone come SFP
'A person is making a phone call.'
- b. *Shi shei?*
SHI who
Intended meaning: 'Who is the person making the phone call?'
- (94) a. *Yuehan xiang renshi yi-ge nusheng.*
John want know one-CL girl
'John wants to know a girl.'
- b. *Shi shei?*
SHI who
Intended meaning: 'Who is that girl?'
- (95) a. *Yuehan mai-le mou-ben/yi-ben shu.*
John buy-ASP some-CL/one-CL book
'John bought some book/a book.'
- b. *Shi shenme shu?*
SHI what book
Intended meaning: 'What book was bought by John?'
- (96) a. *Yuehan xiang zhao yi-tian qu tanwang nainai.*
John want find one-day go visit grandmother
'John wants to find one day to visit Grandmother.'
- b. *Shi na-yi tian?*
SHI which-one day
Intended meaning: 'On which day does John want to visit grandmother?'
- (97) a. *Jingfang yong mou-zhong qiang jibi-le xianyifan.*
police use some-kind gun kill-ASP suspect
'The police killed the suspect with a specific kind of gun.'
- b. *Shi na-zhong/shenme qiang?*
SHI which-kind/what gun
Intended meaning: 'What kind of gun did the police use to kill the suspect?'

The *wh*-phrases shown in the examples above differ from those seen earlier in that they are preceded by *shi* and can be felicitously used as a follow-up question in the same contexts. As proposed in Wei (2004; 2011), there are two types of *shi* in Mandarin Chinese, one of which is an identification verb and the other an emphatic modal. I argue that the *shi* present in the responses seen in above is an identification verb, rather than an emphatic modal that appears in cleft sentences.

Huang (1988) notes that *shi* can appear in more than one position in Mandarin cleft sentences.

- (98) a. *Ta shi keneng dao Niuyue qu le.*
 he SHI possible arrive New York go SFP
 'It is possible that he has gone to New York.'
- b. *Ta keneng shi dao Niuyue qu le.*
 he possible SHI arrive New York go SFP
 'It is to New York that he might have gone.'

As we can see above, *shi* can either precede or follow the modal *keneng* 'possible', and it is considered a raising predicate in Huang (1988). However, such flexibility is not observable in Mandarin short *wh*-phrase questions.

- (99) a. *Keneng shi shei?*
 possible shi who
 'Who might be the person?'
- b. **Shi keneng shei?*
 shi possible who
- (100) a. *Keneng shi na-yi tian?*
 possible SHI which-one day
 Intended meaning: 'On which day is John likely to go visit grand-mother?'
- b. **Shi keneng na-yi tian?*
 SHI possible which-one day

In Mandarin short *wh*-phrase questions, *shi* can only follow the modal *keneng* 'possible'; switching the positions of these two constituents generates an ungrammatical sentence. (99a) and (100a) are felicitous responses to (93a) and (96a) while those in (99b) and (100b) are not. Given this fact, the *shi* present in the short *wh*-questions used as a response in (93–97) should be considered an identification verb, which suggests that there exists an empty category preceding it. As a result, I analyze (93b) and (96b) as follows.

- (101) a. *pro shi shei?*
 SHI who
- b. *pro shi na-yi tian?*
 SHI which-one day

Following Wei's (2004; 2011) analysis advocated for Mandarin pseudo-slurcing constructions, I propose that the null pronominal preceding *shi* is a null E-type pronoun (Evans 1980), since it is connected with the indefinite NP that appears in the antecedent sentence. In other words, we should adopt a base-generation approach for short *wh*-questions that begin with *shi* like (93b–97b), in which a null pronoun is predicated by the sequence of words consisting of *shi* and the *wh*-phrase that follows it.

To sum up, Mandarin pseudo matrix sluicing constructions without *shi* display several syntactic properties that cannot be captured by the movement and ellipsis approach and the base-generation analysis. As a result, I propose that we should use LF-copying to account for the derivation of such responses. The advantage of adopting this approach is that it not only provides an explanation for the (un)grammaticality of sprouting cases, but also respects the fact that Mandarin Chinese is a non-preposition-stranding language. Although the base-generation analysis does not play a significant role in the formation of most Mandarin pseudo matrix sluicing constructions, in the last part of this subsection, I illustrate that we still need it to deal with certain short *wh*-questions that begin with *shi*.¹³

4. Conclusion

Speakers of Mandarin Chinese use *wh*-phrases in conversation to respond to another speaker. In this paper, I first explored two possible analyses of these phrases, one of which relies on movement and ellipsis while the other on base-generation. The movement and ellipsis approach proposes that the independently present *wh*-phrase is derived by moving from a full-fledged sentence where it is base-generated, after which TP-ellipsis applies. In contrast, the base-generated *pro* analysis suggests that there exists a *pro* which is linked to an indefinite NP that appears in the earlier utterance. Given the fact that these analyses face empirical and theoretical problems, I turn to a mechanism that is based on LF-copying. Inspired by Williams (1977) and Chung et al. (1995), I propose that Mandarin pseudo matrix sluicing constructions are generated with an underly-

13. One of the reviewers was wondering what we can benefit from the proposed analysis on theory-internal grounds. Merchant (2004) accounts for the derivation of fragment answers and sluicing constructions in English in terms of the movement and ellipsis analysis, which is built on the assumption that the [E]-feature exists in English. Liu (2022), on the other hand, argues that if van Craenenbroeck & Lipták's (2009) *Wh*/sluicing correlation is on the right track, then we might claim that Mandarin Chinese does not have the [E]-feature, given the fact that Mandarin Chinese is a *wh*-in-situ language. As a result, Liu adopts LF-copying to account for the derivation of fragment answers in Mandarin Chinese. In §3.1.1 of this paper, I showed that applying the movement and ellipsis analysis to Mandarin short *wh*-phrase questions would bring us empirical problems, so I propose not to use this approach. This fact, coupled with the proposed LF-copying analysis in this work, amounts to saying that we also do not need the [E]-feature to account for the derivation of Mandarin short *wh*-questions, which seems to constitute another piece of evidence supporting Liu's (2022) claim that the [E]-feature is absent in Mandarin Chinese.

ingly empty IP, and the only constituent that is available in the Deep Structure and the Surface Structure is the *wh*-phrase itself. When this sentence reaches LF, the internal structure of the antecedent IP is copied into the empty IP position, which consequently gives rise to a structure in which the *wh*-phrase located in the Spec of CP can get interpreted. Under this framework, the *wh*-phrase stays in its base-generated position throughout the derivation, which reflects the fact that Mandarin Chinese is a *wh*-in-situ language. Moreover, given the fact that no prepositions get stranded in narrow syntax, the proposed analysis follows from another property of Mandarin Chinese: non-preposition-stranding. Thus, the LF-copying analysis seems to be a better solution to the phenomenon investigated in this work.

Funding

This paper was supported by the Ministry of Science and Technology in Taiwan (MOST 109-2410-H-009-050).

Acknowledgements

I would like to thank the anonymous reviewers for raising insightful questions and giving me constructive advice. I also benefit a lot from the discussions with Luther Liu and Daphne Liao. All the remaining errors are my own.

Appendix

I gave an informal questionnaire to 39 college students (all of them are native speakers of Mandarin Chinese) in Taiwan, asking them if the responses in (18–21) and those in (57–60) are acceptable (A), marginal (M), or unacceptable (UA). The result is summarized below.

A M UA

- (i) a. *Yuehan yao likai Taiwan le.*
 John will leave Taiwan SFP
 ‘John will leave Taiwan.’
 b. *Shenme shihou?*
 what time
 c. *Shi shenme shihou?*
 SHI what time
 (ii) a. *Wo mingtian xiang qu guangjie.*
 I tomorrow wantz go shopping
 ‘I want to go shopping tomorrow.’





34 3 2

14 15 10











b.	<i>Ji dian?</i> what time	37 2 0
c.	<i>Shi ji dian?</i> SHI what time	3 7 29
(iii) a.	<i>Yuehan yishi-le tade xingyong ka.</i> John lose-ASP his credit card 'John lost his credit card.'	
b.	<i>Zai nali?</i> in where	30 5 4
c.	<i>Shi zai nali?</i> SHI in where	11 15 13
(iv) a.	<i>Yuehan zuotian di-chu ci-cheng.</i> John yesterday hand-out resignation-letter 'John handed in the resignation letter yesterday.'	
b.	<i>Weishenme?</i> why	37 1 1
c.	<i>Shi weishenme?</i> SHI why	11 13 15

The number shown in this summary represents how many students judged each of the responses. As we can see above, the short *wh*-phrase questions without *shi* are better than those beginning with *shi* in acceptability. This fact suggests that this type of sentence should be treated differently from Mandarin pseudo-sluicing constructions like (56a) and (56b), in which *shi* can appear.

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Publication history

Date received: 1 April 2022

Date accepted: 22 December 2022

Published online: 9 August 2024