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On the syntax and semantics of sluicing in Mandarin Chinese

https://doi.org/10.1515/css-2024-2009

Abstract: This article investigates the syntax of sluicing in Mandarin Chinese, including the syntactic constraints on predicates that might appear in sluicing, the reclassification of wh-phrases, the syntactic status of shi ‘be’ and you ‘have,’ and the syntactic derivation of typical sluicing and pseudo-sluicing. This article argues that there are both pseudo-sluicing and typical sluicing in Chinese, with each involving different structures and derivations and requiring different analysis.

Keywords: constraint; derivation; wh-phrases; pseudo-sluicing; reclassification

1 Introduction

Ellipsis is a topic that has attracted an increasing amount of attention over the years, mainly because of its unique structure within which some constituents have semantic meanings but lack a phonetic realization in Phonetic Form (PF). The concept of sluicing was first proposed by Ross (1969) and then revised and explored extensively by other linguists (e.g., Chung et al. 1995; Culicover and Jackendoff 2005; Merchant 1998, 1999, 2001, 2002, 2004, 2006, 2008, 2010, 2013, 2015, 2019; van Craenenbroeck 2010, 2012; van Craenenbroeck and Lipták 2006; Wang and Han 2020). Sluicing is a phenomenon where a wh-phrase is stranded in a position that immediately follows an embedding predicate, as illustrated in (1).

(1) Somebody just left – guess who.

However, example (2), with which (1) is semantically related, is full-fledged. In other words, the deleted elements have been reconstructed, as shown below.

(2) Somebody just left – guess who just left.
According to Ross (1969) and Merchant (2001), (1) is derived from the fully represented counterpart in (2), and the derivation of sluicing involves the overt movement of a *wh*-phrase and a subsequent deletion of the constituents that follow the *wh*-phrase under the condition that the deleted parts are either syntactically or semantically identical to the corresponding constituents in the antecedent clause, thus stranding the remnant *wh*-phrase. Therefore, the derivation of (3a) is represented as in (3b).

(3)  
   a. John bought something, but I don’t know [what]. (Merchant 2001: 1)  
   b. John bought something, but I don’t know [what, [he bought ti]].

Given the nature of Universal Grammar (Chomsky 1986) and the prima facie fact that sluicing is widespread in various languages, sluicing can also be found in Chinese, as shown in (4).

(4)  
   a. *Zhangsan kandao mouren, danshi wo bu zhidao *(shi) shi* shei.*  
      Zhangsan see someone but I not know be who  
      ‘Zhangsan saw someone, but I don’t know who’  
      (Wei 2004: 165)  
   b. *Lisi qu Meiguo le, keshi wo bu zhidao (shi) shenme shihou.*  
      Lisi go US ASP but I not know be what time  
      ‘Lisi went to the U.S., but I don’t know when.’  
      (Wang and Wu 2006: 376)

Although (2) and (4) might indicate that sluicing in English shares similar surface structures with sluicing in Chinese, it appears that the latter is in some way different from the former in that sluicing in Chinese involves the presence of *shi ‘be’* in front of the *wh*-phrase in spite of the fact that *shi ‘be’* can be obligatory or optional under certain circumstances. In spite of the similarities of and differences between sluicing in English and Chinese, we consider whether sluicing in Chinese can be analyzed in the same way as its English counterpart is or whether it should be done differently.

This article attempts to explore the syntactic constraints on predicates that might appear in Chinese sluicing, the reclassification of *wh*-phrases, and the syntactic derivation and representation of sluicing in Chinese. Moreover, this article limits the discussion to sluicing with only one *wh*-phrase, leaving aside an examination of sluicing with multiple *wh*-phrases.

In the following, we present a literature review of approaches to sluicing in both English and Chinese, followed by our proposal for the analysis of sluicing in Chinese. The article concludes that there are typical sluicing and pseudo-sluicing in Chinese with each involving different representations and derivations.
2 Previous approaches to sluicing

This section reviews different approaches to sluicing in both English and Chinese. Section 2.1 discusses the non-structure approach to English sluicing; Section 2.2 describes the structure approach; Section 2.3 deals with the existing approaches to Chinese sluicing; and Section 2.4 recapitulates the core ideas of the different approaches and paves the way for our analysis.

2.1 The non-structure approach to sluicing in English

Sluicing was first proposed and discussed by Ross (1969). Currently, there are two dominant approaches to sluicing, one being the non-structure approach and the other being the structure approach. The former, as its name suggests, claims that there is no structure following the \textit{wh}-phrase, while the latter posits that what appears to be an isolated \textit{wh}-phrase is actually derived from a Complementizer Phrase (CP), and that a series of operations, such as movement and deletion, is involved to generate a well-formed sluicing.

Van Riemsdijk (1978) pointed out that the \textit{wh}-phrase in sluicing questions a variable in a previous context.

(5) Someone has finished the washing, but we are not sure who.
    (van Riemsdijk 1978: 232)

The \textit{wh}-phrase \textit{who} in (5) asks about the identity of the person that is mentioned in the previous linguistic context. Moreover, the context does not necessarily have to be in the same clause with the \textit{wh}-phrase but it can also appear in an independent discourse, as exemplified in (6).

(6) — Someone has finished the job.
    — You will never know who.
    (van Riemsdijk 1978: 233)

In this respect, sluicing is not unique, because it can appear not only in embedded clauses but also in matrix clauses, and the variables in sluicing may not only be questioned but also be filled by NPs, as shown in (7).

(7) — Someone has finished the job.
    — It must be Tom.
    (van Riemsdijk 1978: 233)

Therefore, van Riemsdijk called the phenomenon of sluicing “connectedness of discourse” and pursued the rules of pragmatic connectedness to account for sluicing.
Culicover and Jackendoff (2005) defined sluicing as a bare interrogative phrase in a context where an indirect question would be expected, as exemplified in (8).

(8) John is drinking something, but we don’t know what.
   (Culicover and Jackendoff 2005: 266)

Culicover and Jackendoff suggest that the *wh*-phrase in sluicing has no underlying structure and that sluicing is a construction whose utterance meaning is a *wh*-question. Therefore, sluicing can be used only in contexts where an indirect question can be semantically licensed. Specifically, sluicing can be interpreted via indirect licensing (IL). The *wh*-phrase is called an orphan (ORPH), and its semantics contains a question operator Qx, which binds the semantics of the *wh*-phrase, thus making the meaning that of a *wh*-question. The function F is the propositional content of the *wh*-question whose value is constructed from context by indirect licensing. According to Culicover and Jackendoff, the syntax and semantics of sluicing is briefly represented in (9).

(9) Syntax: \[ S_{wh\text{-phrase ORPH}} \]
    Semantics: Qx \[ F(x) \]

2.2 The structure approach to sluicing in English

The structure approach claims that there is a structure internal to the position following the sluiced *wh*-phrase. Within this approach, there are two lines of investigation: the PF deletion approach and the LF copying approach.

2.2.1 The PF deletion approach

The PF deletion approach (e.g., Kim 1997; Lasnik 2001; Merchant 2001, 2004, 2006, 2008, 2013, 2015, 2019; Ross 1969; Sag 1976) states that sluicing is derived from overt movement of the *wh*-phrase followed by deletion of an IP at PF. Concretely, the *wh*-phrase is base-generated within an IP, from which it moves overtly to [Spec, CP] before spell-out. At PF, the complement of CP, namely, IP, is deleted, thus stranding the *wh*-phrase.

Merchant (2001) argues that the external structure of sluicing is an interrogative CP rather than an isolated *wh*-phrase serving as a complement to an embedding predicate. Furthermore, he presented four pieces of evidence to support his assumption that what appears to be a simple *wh*-phrase in isolation is actually a CP. These four pieces of evidence are the selection requirement of predicates, the case-matching requirement, the number agreement between a predicate and its subject, and the syntactic distribution of an NP and a CP.
Moreover, in the internal structure of sluicing, a wh-phrase undergoes overt movement from its base position to [Spec, CP] in order to check the strong [+WH] feature on C, and then the E feature, which is located in C, licenses the deletion of the complement of C, namely, IP, at PF, thus stranding the sluiced wh-phrase and deriving a well-formed sluicing.

2.2.2 The pseudo-sluicing approach

Other linguists disagree with Merchant’s (2001) claim that sluicing is derived from a full interrogative CP (e.g., Barros 2014; Erteschik-Shir 1977; Rodrigues et al. 2009; van Craenenbroeck 2010, 2012; Vicente 2008). They argue instead that sluicing like (10a) is not derived from (10b) but from an underlying structure in (10c) with deletion of the subject it and the copular is.

(10) a. Someone has just left, but we don’t know who.
b. Someone has just left, but we don’t know [CP who, t, i has just left].
c. Someone has just left, but we don’t know who it is.

(Barros 2014: 3)

These linguists further posit that there is no “true sluicing” in English and that what appears to be “true sluicing” is actually derived from a cleft. The pseudo-sluicing approach seems to be reasonable because it conforms to the spirit of the Economy Condition, which requires that derivations and representations have to be minimal with no superfluous steps in derivations and no superfluous symbols in representations (Chomsky 1989), and it can also avoid the island repair issues which have been encountered by the PF deletion approach.

However, given that it is not always possible for the subject and the copular in a cleft to be deleted, the claim that sluicing is derived from an underlying structure of a cleft with deletion of the subject it, the copular and the presupposition part does not seem to hold water after all.

2.2.3 The LF copying approach

The LF copying approach (e.g., Chao 1987; Chung et al. 1995; Lobeck 1993, 1995) assumes that the wh-phrase in sluicing does not involve any overt movement but is instead base-generated in [Spec, CP]. Furthermore, there is no underlying structure following the wh-phrase throughout the entire derivation of sluicing. In other words, the base-generated wh-phrase is followed by an empty IP. However, at LF, a series of mechanisms is involved, namely, IP recycling, sprouting, and merger, in order to provide an appropriate question interpretation for sluicing. Therefore, the task of interpreting sluicing is to provide a question type meaning for it. If a legitimate LF
can be constructed for sluicing, sluicing is interpretable and has an appropriate interpretation which is the same in all relevant respects as the interpretation of the corresponding constituent question. If sluicing is uninterpretable, the only reason might be that no legitimate LF can be constructed for it.

According to the LF copying approach, no wh-movement is involved in sluicing, and the approach can avoid the problems that the PF deletion approach has encountered. However, it is still defective, to some extent, because it fails to explain why the connectivity effect and preposition-stranding are observed in sluicing. Moreover, the LF copying approach has severed the connection between PF and LF, which are two closely-connected components after spell-out. Such a discrepancy is not expected under the PF deletion approach, because what has been sent to the PF component and the LF component is the same material, which is a full interrogative CP.

2.3 The approaches to sluicing in Chinese

Given that sluicing can be found cross-linguistically, if we follow the same logic, we might expect to find the existence of sluicing in Chinese.

2.3.1 Movement approaches

Although Chinese is a wh-in-situ language (Huang 1982), wh-phrases could be fronted to the left periphery of a sentence in order to check other features rather than the [+WH] feature.

Accordingly, there are works in the literature (e.g., Chiu 2007; Murphy 2014; Wang 2002; Wang and Wu 2006) which posit that wh-phrases in Chinese sluicing undergo overt focus movement. In other words, it is the focus feature rather than the wh-feature that triggers overt movement of the wh-phrase. Furthermore, the Focus Phrase (FocP) is generated between CP and IP, and the copular verb shi ‘be’ is located in the head of FocP and is regarded as a focus marker.

It is observed that the presence of the copular verb shi ‘be’ is obligatory in front of wh-arguments, such as shei ‘who’ and shenme ‘what,’ while it is optional before wh-adjuncts, such as shenme shihou ‘what time.’ Wang and Wu (2006) attributed this asymmetry between wh-arguments and wh-adjuncts with respect to the presence of shi ‘be’ to a case requirement in that the presence of shi ‘be’ serves as a case-assigner for wh-arguments, and the absence of it is explained by the fact that wh-adjuncts do not need to be case-marked.

In addition to the focus movement approach, Fu (2014) proposed the topic movement account under the Cartographic Approach (Cinque 1999; Rizzi 1997). Fu
(2014) agrees with what has been advocated by the focus movement approach, namely, that the overt movement of wh-phrases takes place in Chinese sluicing. However, deviating from the focus movement approach, she argues that the overt fronting of wh-phrases is triggered not by the [+WH] feature but by the [+Contrast/Aboutness] feature of the head of TopP. Furthermore, she classifies constructions with simplex wh-phrases, such as shenme ‘what’ and shei ‘who,’ into pseudo-sluicing, which involves a simple structure that contains an empty pronominal subject pro, the obligatory presence of the copular verb shi ‘be,’ and the wh-phrase.

2.3.2 The cleft and pseudo-cleft approaches

Kawabara (1996) and Kizu (1998) argue that sluicing in Chinese is derived from a cleft in which other constituents excluding the copula verb shi ‘be’ and the wh-phrase are deleted at PF, thus generating a well-formed sluicing.

However, sluicing in Chinese is different from a cleft in many ways. First, in a cleft, the subject can be focalized, but the object cannot. However, this asymmetry is not observed in sluicing because the wh-phrase can appear in both the subject and the object positions in sluicing.

Second, when the wh-phrase is an adjunct, the situation becomes even worse. According to the cleft approach, (11a) is assumed to be derived from (11b) with the deletion of the material on both sides of the sequence shi shenme shihou ‘be what time.’

Nonetheless, it is agreed that only what is constituent can be deleted (Jayaseelan 1990; Lasnik 1999; Merchant 2004). What is deleted in (11b) does not form a continuous constituent, which, accordingly, makes the deletion operation groundless. Moreover, Ince (2012) has claimed that no theory of ellipsis can naturally explain how an intermediate position in a string can be pronounced while phrases before and after this position are elided.
Third, since the presence of *shi ‘be’* is obligatory in a cleft, the cleft approach is not able to explain the discrepancy between the obligatory presence of *shi ‘be’* in sluicing before simplex *wh*-arguments and the optional one before *wh*-adjuncts.

### 2.3.3 The pseudo-sluicing approach

The pseudo-sluicing approach (Adams 2004; Adams and Satoshi 2012; Li and Wei 2014; Wei 2004, 2017) states that there is no true sluicing in Chinese. Instead, what appears to be true sluicing is in fact a pseudo-sluicing, which can be represented as a simple clause with an empty pro, a copular verb *shi ‘be’*, and a *wh*-phrase. In addition, the pseudo-sluicing approach assumes that there is a pro subject in the predicative part of the embedded clause of pseudo-sluicing in Chinese. In spite of its implicitness, the pro subject can serve as a connection between the antecedent and the *wh*-phrase. Furthermore, according to the pseudo-sluicing approach, syntactic island effects are not observed. Since no *wh*-movement is involved in the analysis of sluicing in Chinese, no syntactic island has been crossed and hence no violation has been induced even though there does exist a syntactic island in the antecedent clause.

### 2.3.4 The LF copying approach

Liu (2006) argues that sluicing in Chinese should be analyzed via the LF copying approach. Specifically, in sluicing the *wh*-phrase in overt syntax is base-generated in [Spec, CP] following the embedding predicate in the second clause and it is followed by an empty IP. At LF, the operations of IP recycling, sprouting, and merger are involved to reconstruct the empty IP and provide a legitimate interpretation for sluicing. Therefore, the task of interpreting sluicing in Chinese is to derive a question type meaning for the interrogative CP. Liu (2006) follows Berman (1991) in claiming that a full constituent question is a tripartite construction, which includes three essential elements: interrogative operator, nuclear scope and restrictive clause. She divides sluicing in Chinese into two kinds: one with an overt correlate and the other with a covert one. As for the former, the operations of IP recycling and merger are required. And as for the latter, the operation of sprouting is also needed in addition to IP recycling and merger.

### 2.4 Interim summary

In this section, different approaches to sluicing in both English and Chinese have been discussed. Admittedly, the previous studies have uncovered some of the important characteristics of and constraints on sluicing, but these studies either
have given unsatisfactory answers to existing questions or have triggered some new questions. Regarding sluicing in Chinese, although the characteristics and the presence of shi ‘be’ have been discussed, no consensus has been reached. The characteristics of Chinese sluicing have not been discussed thoroughly, but no agreement has been reached on the standard of setting typical sluicing apart from pseudo-sluicing. Furthermore, the exact constraints governing the motivation of the fronting of wh-phrases and the presence or absence of shi ‘be’ in front of wh-phrases have not been discussed satisfactorily. In addition, the discrepancy between wh-arguments and wh-adjuncts, with the former being analyzed in overt syntax while the latter are analyzed at LF, is not in accordance with the spirit of the Minimalist Program (Chomsky 1993, 1995). Perhaps a better understanding and a more elaborate analysis of sluicing in Chinese might be achieved when we take into full consideration the weaknesses that each approach has exhibited in the process of analyzing sluicing and make good use of the existing research results at hand.

3 Our analysis of sluicing in Chinese

3.1 The Sluicing-Foc Assumption

Merchant (2001) observes that elements that normally appear in the head of CP in other environments cannot take that position in sluicing. For example, an auxiliary can undergo head movement from I to C in interrogative sentences. However, this is not the case in sluicing, as in (12).

(12) — Max has invited someone.
    — Really? Who (*has)?

In (12), the auxiliary has cannot appear after the wh-phrase who. However, under normal circumstances, an auxiliary is able to move from I to C in a matrix interrogative sentence. We might assume that the sluicing in (12) is not derived from the matrix interrogative sentence who has Max invited but from an interrogative sentence in an embedded clause who Max has invited with a subsequent deletion of IP Max has invited at PF. Therefore, C does not contain a strong feature which can trigger the overt movement of the auxiliary from I to C.

Another similar case concerns complementizers, such as that, if, and for. Merchant claimed that in sluicing these complementizers cannot appear in C either because they are not able to license a null IP complement.
(13)  
a. John hated someone, but we don’t know [CP that [IP John hated someone]].
b. *John hated someone, but we don’t know [CP that [IP John hated someone]].

(14)  
a. Mary said that she would quit her job, but we are not sure [CP if [IP she would quit her job]].
b. *Mary said that she would quit her job, but we are not sure [CP if [IP she would quit her job]].

(15)  
a. Lucy asked Lily to pursue a PhD, but [CP for [IP Lily to pursue a PhD]] is not quite realistic.
b. *Lucy asked Lily to pursue a PhD, but [CP for [IP Lily to pursue a PhD]] is not quite realistic.

Merchant observes that in sluicing no constituent that is irrelevant to the wh-phrase which is in [Spec, CP] can appear in C. Therefore, he proposed the Sluicing-COMP Generalization, which states that in sluicing no non-operator material may appear in COMP. In this generalization, an operator refers to a wh-phrase, and material refers to any pronounced constituents. Since the wh-phrase is located in [Spec, CP], no overt material can appear in C. C can only carry features that match those of the wh-phrase. Merchant suggested that C carries the strong [+WH, +Q] feature, which requires that its specifier should be a wh-phrase which carries the same [+WH, +Q] feature.

I assume that shi ‘be’ is base-generated in Foc in Chinese sluicing and wh-phrases undergo focus movement from IP-internal positions to [Spec, FocP] and that such movement is triggered by the strong [+Foc] feature in Foc. Accordingly, on the basis of the Sluicing-COMP Generalization, I propose the Sluicing-Foc Assumption in that in sluicing no overt material can appear in Foc at PF. Therefore, there are two options that shi ‘be’ is faced with: one is that it can undergo a head movement from Foc to Force, thus linearly preceding the wh-phrase, followed by a subsequent deletion of the complement IP at PF, as in (16a); the other is that it stays in-situ and is deleted along with the complement IP at PF according to the Sluicing-Foc Assumption, as in (16b).

(16)  
a. Zhangsan zuotian yujian le yige ren, danshi wo bu zhidao
Zhangsan yesterday meet ASP a person but I not know
be which person Zhangsan yesterday meet
‘Zhangsan met someone yesterday, but I don’t know who.’
b. Zhangsan zuotian yujian le yige ren, danshi wo bu zhidao
Zhangsan yesterday meet ASP a person but I not know
[FocP [nage ren]j [sh f] [IP Zhangsan zuotian yujian ti]].
which person be Zhangsan yesterday meet
‘Zhangsan met someone yesterday, but I don’t know who.’
One might wonder whether deletion of the in-situ shi ‘be’ in Foc along with the complement IP at PF is a legitimate operation or not since what has been deleted does not form a constituent. I follow An (2016) in assuming that PF deletion does not invariably target constituents, but it can sometimes be extended beyond what is initially marked for deletion. It is true that PF deletion always operates on strings of elements in the same way as syntactic operations target syntactic constituents. For example, in order to be well-formed, what is deleted should form a constituent. However, even though it is the syntactic operation that determines the target for deletion, the PF deletion can also have its own guidelines as to what might be deleted. Therefore, PF deletion can sometimes go beyond and target another element which is not a potential candidate for deletion and which does not form a constituent with the to-be-deleted material. On the basis of this assumption, I argue that the deletion of the in-situ shi ‘be’ in Foc together with the complement IP at PF is a legitimate operation.

3.2 The syntactic constraints on predicates and functions of sluicing in Chinese

3.2.1 The syntactic constraints

Merchant (2001) posits that only those predicates that semantically select interrogatives and categorically select CPs allow sluiced wh-phrases in English. On the basis of the properties of predicates in sluicing, he argues that the external structure of sluicing in English is a CP.

Given the universality of natural languages, there are certain principles that all languages share. If predicates in English sluicing have the properties as mentioned, then we might assume that predicates in Chinese sluicing also have the same properties as their English counterparts do. Let us first figure out some of the predicates that frequently occur in Chinese sluicing, such as zhidao ‘know’ and jide ‘remember.’ These predicates, generally speaking, usually select an interrogative sentence as their complement when they are negated, as shown in (17).

(17) a. Ni juran bu zhidao [ta zai nali mai de fangzi]? you unexpectedly not know he at where buy DE apartment ‘How come you didn’t know where he had bought the apartment.’

b. Women dou jide nawei toufa huabai de laoren, danshi we all remember that hair gray DE old man but bu jide [ta wei shequ zuo le duoshao haoshi]. not remember he for community do ASP how many good things ‘We all remember that gray-haired old man, but we don’t remember how many good things he has done for the community.’
All the predicates in the above examples take a complement CP. However, a distinction has to be made between a complement CP and a complement NP. Let’s take the predicate zhidao ‘know’ as an example.

(18) a. Wo zhidao [zhege nanren].
   I know of this man
   ‘I know of this man.’

   b. Wo zhidao [zhege nanren shi shei].
   I know this man be who
   ‘I know who this man is.’

The two sentences indicate that the predicate zhidao ‘know’ can take either an NP or a CP as its complement. However, the choice of a complement results in different interpretations of the relevant sentence. Specifically, when the predicate selects a complement NP zhege nanren ‘this man,’ it semantically selects an entity such that the entity refers to a particular person. When the predicate selects a complement CP zhege nanren shi shei ‘who this man is,’ it semantically selects the identity of a particular entity. Suppose there is a context where Mary met a man in the school library but most of her classmates do not know who this man is except John, who is asked the following question.

(19) Mali zai tushuguan yudao yige nanren, women dou bu zhidao shi shei, ni ne?
   Mary at library meet a man we all not know be who you SFP
   ‘Mary met a man in the library and all of us don’t know who this man is. How about you?’

Since the expression ni ne ‘how about you’ questions whether John knows who this man is or not, a natural answer to (19) will be (18b) rather than (18a). In addition, John can even reply with a simpler answer, as in (20).

(20) Wo zhidao shi shei.
   I know be who
   ‘I know who this man is.’

(18b) and (20) are semantically identical in that both convey the meaning of a state of an entity instead of an entity that is isolated from a previous linguistic context.

On the basis of the above, it is appropriate to claim that only those predicates which categorically select a complement CP and semantically convey a state of an entity or an event may appear in sluicing in Chinese.
3.2.2 The syntactic functions

The syntactic functions of sluicing are to convey a state of an entity or to describe an event. Let’s take (21) as an example.

(21) a. Zhangsan taoyan yige ren, keshi dajia bu zhidao
    ‘Zhangsan hates a person, but everyone not know
    be which person
    shi nage ren.’

b. Lisi gen Xiaohong fenshou le, keshi meiren qingchu
    ‘Lisi broke up with Xiaohong, but no one clear
    be why
    shi weishenme.’

It is indicated that the *wh*-phrase in (21a) is not an isolated constituent asking about which person but is part of a CP which describes the identity of this person such that Zhangsan hates this person. Likewise, the *wh*-phrase in (21b) does not inquire about any random reason but about the one for the event that Lisi broke up with Xiaohong. Therefore, the *wh*-phrases in the above sentences should have the same interpretation as a full interrogative CP.

Further supporting evidence comes from some constraints on the well-formedness of sluicing. The first constraint states that sluicing is only possible provided that there is an antecedent clause available, as in (22).

(22) a. Xiaohong mai le yiben shu, keshi wo bu qingchu
    ‘Xiaohong bought a book, but I not clear
    be what book
    shi shenme shu.’

b. *Wo bu qingchu shi shenme shu.
    ‘I am not clear what book.’

(22a) is a well-formed sluicing since the *wh*-phrase *shenme shu* ‘what book’ can locate its correlate *yiben shu* ‘a book’ in the antecedent clause, which functions as a presupposition and provides a linguistic context for the second part. Accordingly, (22a) is grammatical and acceptable and asks about the identity of the book that Xiaohong bought. However, in (22b), sluicing is out of the question simply because the sentence comes out of the blue and no linguistic context is available and the sentence is weird and unacceptable.
The second constraint concerns the relevance between the first part and the second part of sluicing. Sluicing is possible only when the two parts are semantically relevant.

(23) a. *Xiaoming xihuan yibu dianying, keshi wo bu liaojie
   Xiaoming like a film but I not know
   shi shei.
   be who
   ‘Xiaoming likes a film, but I don’t know who.’

b. *Xiaohong mai le yitao fangzi, keshi women bu zhidao
   Xiaohong buy ASP an apartment but we not know
   shi shenme.
   be what
   ‘Xiaohong bought an apartment, but we don’t know what.’

In (23a), the first half is about a film and the second half is supposed to ask about the identity of the film that Xiaoming likes in order for sluicing to be possible. However, it inquires about the identity of a person. Thus, sluicing is ruled out. Likewise, in (23b), the first half expresses an event that Xiaohong bought an apartment and the second half might ask about the time, place, or reason why such an event has taken place. Nonetheless, the second half asks about the identity of an entity. Therefore, sluicing is also unavailable.

The two constraints on the availability of sluicing indicate that the functions of sluicing are related to the state or the identity of an entity or the description of an event. Moreover, sluicing should be interpreted in the same way as a full interrogative CP is.

3.3 A reclassification of *wh*-phrases in Chinese sluicing

Wei (2004, 2009, 2011) argues that in Chinese there is no typical sluicing like that in English and that the prima facie sluiced examples should instead be analyzed as pseudo-sluicing. Therefore, he proposes the pseudo-sluicing approach to sluicing in Chinese. Accordingly, the core structure of sluicing in Chinese consists of an empty pronominal subject, a copular verb shi ‘be,’ and a *wh*-phrase. Consequently, Wei classified *wh*-phrases into five categories on the basis of their predicative nature and their various forms of predication, including the forms of modificational predication and prepositional and adjectival predication.

The classification of *wh*-phrases works for Wei’s pseudo-sluicing approach to sluicing in Chinese. However, I attempt to reclassify *wh*-phrases in Chinese according to the complexity of their internal structures and the syntactic functions that they
play in order to better serve the purpose of our analysis. Specifically, according to the complexity of the internal structures of \textit{wh}-phrases, I classify them into simplex \textit{wh}-phrases and complex \textit{wh}-phrase. Furthermore, according to the syntactic functions that \textit{wh}-phrases play in sluicing, I divide them into \textit{wh}-arguments and \textit{wh}-adjuncts. Logically, these classifications will lead to four different kinds of combination of \textit{wh}-phrases: simplex \textit{wh}-arguments, complex \textit{wh}-arguments, simplex \textit{wh}-adjuncts and complex \textit{wh}-adjuncts. In terms of \textit{wh}-arguments, the simplex ones refer to the two \textit{wh}-phrases which function as individual phrases and do not take any NP complements, such as \textit{shei} ‘who’ and \textit{shenme} ‘what,’ while the complex ones refer to those which subcategorize for or select NP complements, although sometimes the NP complement can be absent on the condition that it can locate a correlate in the antecedent clause such as \textit{sheide} (\textit{dongxi}) ‘whose (thing)’.

Likewise, with respect to \textit{wh}-adjuncts, the simplex ones refer to those \textit{wh}-adjuncts that are regarded as complete linguistic units and cannot be separately into smaller ones, such as \textit{shenme shihou} ‘what time,’ whereas the complex \textit{wh}-adjuncts refer to those which are mostly PPs that select complement \textit{wh}-phrases, such as \textit{gen shei} ‘with whom.’

The reclassification of \textit{wh}-phrases might not be conclusive, but it will serve our purpose. In the next section, we will discuss the syntactic status of \textit{shi} ‘be’ and \textit{you} ‘have’ that are observed in Chinese sluicing.

### 3.4 The syntactic status of \textit{shi} ‘be’ and \textit{you} ‘have’

The presence of \textit{shi} ‘be’ can be frequently observed in Chinese, and it usually functions as a copular verb linking two arguments or as a focus marker that renders the following constituent the focus of an involved sentence. Huang (1988) has systematically analyzed the characteristics and distributions of \textit{shi} ‘be’ in Chinese. He argues that there are two kinds of \textit{shi} ‘be’ in Chinese. Specifically, \textit{shi} ‘be’ can function as a two-place predicate that expresses the meanings of identification or class membership, and it can also serve as an auxiliary that selects an IP as its complement.

With respect to \textit{you} ‘have,’ Huang argues that \textit{you} ‘have’ shares similar characteristics and distributions with \textit{shi} ‘be’ in the sense that \textit{you} ‘have’ can be used both transitively and intransitively. It can serve as a two-place predicate expressing a possessive meaning, or it can function as a one-place predicate conveying an existential meaning.

In addition, Cheung (2008, 2014), following Huang (1988) and Hoh and Chiang (1990), also analyzed the syntactic status of \textit{shi} ‘be.’ She argues that \textit{shi} ‘be’ should not be regarded as a focus marker but should be deemed as an inflectional morpheme.
She further conjectures that the function of *shi‘be* is on a par with that of its English counterpart, which appears in a cleft. That is to say, *shi‘be* may serve to link the null expletive with the fronted *wh*-phrase that is regarded as focus in the cleft.

However, in this article, I assume instead that *shi‘be* has two major functions. Specifically, it serves as a two-place predicate expressing the meaning of identification between a subject and an object in a pseudo-sluicing. Furthermore, *shi‘be* can also be regarded as a focus marker in typical sluicing, which is assumed to be base-generated in Foc.

The properties of *shi‘be* can offer a reasonable account of the syntactic distribution of *shi‘be* in pseudo-sluicing and in typical sluicing in Chinese. Specifically, in pseudo-sluicing, *shi‘be* serves as a two-place predicate and links the subject with the object, and therefore its presence is indispensable, otherwise the sentence would be ill-formed for lack of a predicate. In typical sluicing, it is observed that *shi‘be* might be present or absent in front of *wh*-phrases. According to our assumption, the two different surface structures are actually derived from the same underlying structure except that *shi‘be* can either undergo overt movement and survive the deletion operation or stay in-situ and be deleted at PF, thus resulting in two different syntactic structures.

With regard to *you‘have*, Huang (1988) claims that it has two basic functions. *You‘have* can serve as a two-place predicate conveying a possessive meaning between the subject and the object. In addition, *you‘have* can also function as an intransitive verb expressing an existential meaning. However, in addition to the two functions, we argue that *you‘have* can also be used in a particular type of pseudo-sluicing where it functions as a dummy auxiliary like *do* in English. In this type of pseudo-sluicing, *you‘have* is preceded by an empty *pro* that is either controlled by a correlate in the antecedent clause or it is associated with the attribute of a correlate and is followed by an AP in which a *wh*-phrase that expresses the meaning of degree serves as a specifier.

### 3.5 The syntactic derivation of sluicing in Chinese

On the basis of the reclassification of *wh*-phrases and the syntactic status of *shi‘be* and *you‘have*, I assume that there are both pseudo-sluicing and typical sluicing in Chinese and that each of them involves different syntactic representations and derivations. Specifically, simplex *wh*-arguments, such as *shei‘who* and *shenme‘what,* appear in pseudo-sluicing and the presence of *shi‘be* is obligatory since it functions as an identificational verb linking the empty *pro* and the *wh*-phrase. Furthermore, the simplex *wh*-adjuncts, which are APs, such as *duo gui‘how expensive,* also appear in pseudo-sluicing, and *you‘have* serves to connect the *wh*-
phrase with an empty pro that is associated with one of the attributes of the correlate in the antecedent clause. Moreover, the presence of you ‘have’ is optional since the wh-adjuncts themselves are predicative by nature. And when it appears, it will have the same function as that of a dummy auxiliary do in English and has no effect on the semantic interpretation of the sentence.

With respect to typical sluicing, I assume that complex wh-arguments, complex wh-adjuncts, and simplex wh-adjuncts except zenmeyang ‘how’ and those APs that are associated with one of the attributes of the correlate appear in typical sluicing. Accordingly, in typical sluicing with embedded clauses and matrix clauses, complex wh-arguments undergo focus movement to [Spec, FocP], while simplex and complex wh-adjuncts are base-generated in [Spec, FocP]. In addition, shi ‘be’ is subject to the Sluicing-Foc Assumption, which has an effect on its presence or absence in front of the wh-phrases in typical sluicing. Furthermore, the deletion operation at PF has to be licensed by the Focus Condition on IP-ellipsis.

3.5.1 The analysis of pseudo-sluicing

In terms of pseudo-sluicing, I follow the analysis proposed by Wei (2004, 2009, 2011), who argues that what appears to be sluicing in Chinese is actually pseudo-sluicing, which is a simple structure that is composed of an empty pro, a copular verb shi ‘be,’ and a wh-phrase. However, I also argue that only the two simplex wh-arguments, such as shei ‘who’ and shenme ‘what,’ and simplex wh-adjuncts that are associated with one of the attributes of the correlate in the antecedent clause, such as duo gui ‘how expensive,’ appear in pseudo-sluicing. Furthermore, in front of the two simplex wh-arguments, the presence of shi ‘be’ is obligatorily required. Nonetheless, in front of the simplex wh-adjuncts, the transitive verb you ‘have’ is used and its presence is optional since the following wh-adjuncts are intrinsically predicative. When you ‘have’ is present, it will have the same function as the dummy auxiliary do in English.

(24)  a. Xiaohong xihuan yiwei nansheng, danshi wo bu zhidao
    Xiaohong like a boy but I not know
    pro shi shei.
    pro be who
    ‘Xiaohong likes a boy, but I don’t know who.’

    b. Xiaoming mai le yige liwu, danshi women bu qingchu
    Xiaoming buy ASP a gift but we not clear
    pro shi shenme.
    pro be what
    ‘Xiaoming bought a gift, but we are not clear what.’
In (24a), since the *wh*-phrase *shei* ‘who’ is non-predicative, the presence of *shi* ‘be’ is obligatorily required in order to help it realize predication. Moreover, the empty *pro* is controlled by the indefinite nominal *yiwei nansheng* ‘a boy’ according to the Generalized Control Rule (Huang 1984). Accordingly, the second half of (24a) is interpreted as *wo bu zhidao nage nansheng shi shei* ‘I don’t know who that boy is.’ In a parallel fashion, in (24b), the presence of *shi* ‘be’ is also obligatory because the following *wh*-phrase *shenme* ‘what’ is non-predicative. The empty *pro* refers to the indefinite nominal *yige liwu* ‘a gift’ in the antecedent clause and the second half of (24b) is interpreted as *wo bu qingchu nage liwu shi shenme* ‘I am not clear what that gift is’.

Nonetheless, in the case of pseudo-sluicing that involves the auxiliary *you* ‘have,’ since the *wh*-phrase following *you* ‘have’ is predicative, the presence of *you* ‘have’ is optional.

(25) a. *Fangjia yue lai yue gui le, danshi women* housing price more come more expensive ASP but we *bu zhidao pro (you) duo gui.*
not know pro have how expensive
‘Housing prices are becoming more and more expensive, but we don’t know how expensive.’

b. *Xiaohong you yige meimei, danshi women bu zhidao* Xiaohong have a younger sister but we not know
*pro (you) duo gao.*
pro have how tall
‘Xiaohong has a younger sister, but we don’t know how tall.’

c. *Pa shan hen weixian, danshi women bu qingchu* climb mountain very dangerous but we not clear
*pro (you) duo weixian.*
pro have how dangerous
‘Mountain-climbing is very dangerous, but we are not clear how dangerous.’

In the above examples, the presence of *you* ‘have’ is optional since all the *wh*-phrases following it, namely, *duo gui* ‘how expensive,’ *duo gao* ‘how tall’ and *duo weixian* ‘how dangerous,’ are predicative. However, when *you* ‘have’ is present, it has no effect on the semantic interpretation of the relevant sentences but only adds an emphatic meaning to the following *wh*-phrase. In addition, since the empty *pro* has to be controlled by a nominal indefinite in the antecedent clause, the empty *pro* refers to the housing prices in (25a), the height of the younger sister in (25b), and the degree of danger in mountain-climbing in (25c) respectively. Therefore, it connects the *wh*-phrases with the attributes of the empty *pros.*
3.5.2 The analysis of typical sluicing

Apart from pseudo-sluicing, typical sluicing also exists in Chinese. Typical sluicing can occur not only in matrix clauses but also in embedded clauses. When it occurs in an embedded clause, the negation of the clause does not affect the grammaticality of sluicing. I posit that typical sluicing is closely related to focus. Specifically, complex wh-arguments undergo focus movement to [Spec, FocP] and wh-adjuncts are base-generated in [Spec, FocP].

Let us first discuss the derivation of typical sluicing with embedded clauses.

(26)  
\begin{align*}
\text{a. } & \text{Xiaoming xihuan yiwei nühai, danshi women bu zhidao} \\
 & \text{Xiaoming like a girl but we not know} \\
 & \text{[FocP [Force shi] [FocP [nawei nühai], [Foc t]], \{} \text{Xiaoming xihuan t}\text{].} \\
 & \text{be which girl Xiaoming like} \\
 & \text{‘Xiaoming loves a girl, but we don’t know which girl.’}
\end{align*}

\begin{align*}
\text{b. } & \text{Xiaoming xihuan yiwei nühai, danshi women bu zhidao} \\
 & \text{Xiaoming like a girl but we not know} \\
 & \text{[FocP [nawei nühai], [Foc t], \{} \text{Xiaoming xihuan t}\text{].} \\
 & \text{which girl be Xiaoming like} \\
 & \text{‘Xiaoming loves a girl, but we don’t know which girl.’}
\end{align*}

(27)  
\begin{align*}
\text{a. } & \text{Xiaohong yang le wuzhi mao, danshi women bu zhidao} \\
 & \text{Xiaohong raise ASP five cat but we not know} \\
 & \text{[ForceP [Force shi] [FocP [jizhi gou], [Foc t]], \{} \text{Xiaohong yang le t}\text{].} \\
 & \text{be how many dog Xiaohong raise ASP} \\
 & \text{‘Xiaohong is raising five cats, but we don’t know how many dogs.’}
\end{align*}

\begin{align*}
\text{b. } & \text{Xiaohong yang le wuzhi mao, danshi women bu zhidao} \\
 & \text{Xiaohong raise ASP five cat but we not know} \\
 & \text{[FocP [jizhi gou], [Foc t], \{} \text{Xiaohong yang le t}\text{].} \\
 & \text{how many dog be Xiaohong raise ASP} \\
 & \text{‘Xiaohong is raising five cats, but we don’t know how many dogs.’}
\end{align*}

(28)  
\begin{align*}
\text{a. } & \text{Xiaohong xihuan yibu dianying, erqie wo zhidao} \\
 & \text{Xiaohong like a film and I know} \\
 & \text{[ForceP [Force shi] [FocP [nabu dianying], [Foc t]], \{} \text{Xiaohong xihuan t}\text{].} \\
 & \text{be which film Xiaohong like} \\
 & \text{‘Xiaohong loves a film and I know which film.’}
\end{align*}

\begin{align*}
\text{b. } & \text{Xiaohong xihuan yibu dianying, erqie wo zhidao} \\
 & \text{Xiaohong like a film and I know} \\
 & \text{[FocP [nabu dianying], [Foc t], \{} \text{Xiaohong xihuan t}\text{].} \\
 & \text{which film be Xiaohong like} \\
 & \text{‘Xiaohong loves a film and I know which film.’}
\end{align*}
(29) a. Xiaohong yao qu Guangzhou, danshi women bu qingchu
Xiaohong will go Guangzhou but we not clear
qu Guangzhou].
go Guangzhou
‘Xiaohong will go to Guangzhou, but we are not clear when.’

b. Xiaohong yao qu Guangzhou, danshi women bu qingchu
Xiaohong will go Guangzhou but we not clear
[FoCP [shenme shihou] {Foc shi} f] Xiaohong yao qu Guangzhou].
what time be Xiaohong will go Guangzhou
‘Xiaohong will go to Guangzhou, but we are not clear when.’

(30) a. Xiaoming xiuhao le zixingche, danshi dajia bu zhidao
Xiaoming repair ASP bicycle but everyone not know
[FoCP [FocP [Fang fa] {Foc shi} f] Xiaoming xiuhao] be use what methods Xiaoming
xiuhao le zixingche].
repair ASP bicycle
‘Xiaoming has repaired the bicycle, but none of us know with what method.’

b. Xiaoming xiuhao le zixingche, danshi dajia bu zhidao
Xiaoming repair ASP bicycle but everyone not know
[FoCP [yong shenme sheng fa] {Foc shi} f] Xiaoming xiuhao
use what methods be Xiaoming repair
le zixingche].
ASP bicycle
‘Xiaoming has repaired the bicycle, but none of us know with what method.’

According to our hypothesis, in (26), the focus marker shi ‘be’ is base-generated in Foc and attracts the complex wh-phrase nawei niuhai ‘which girl’ to move from the complement position of the predicate xihuan ‘love’ within IP to [Spec, FocP] in order to check the strong [+Foc] feature in a spec-head configuration. Shi ‘be’ can either move from Foc to Force or remain in Foc. If overt movement of shi ‘be’ takes place, the complement IP will be deleted at PF. This is because the Focus Condition on IP-ellipsis is already satisfied in the sense that the Focus-closure of IPE, which is represented as “Focus-clo(IPE) = ∃x. Xiaoming xihuan x ‘Xiaoming loves x,’” entails the Focus-closure of IPA, which is expressed as “Focus-clo(IPA) = ∃x. Xiaoming xihuan x ‘Xiaoming loves x,’” and vice versa, thus deriving (26a) where shi ‘be’ appears in
front of the *wh*-phrase. Furthermore, if *shi* ‘be’ stays in-situ, it will be deleted together with the complement IP at PF due to the Sluicing-Foc Assumption and the Extra Deletion Assumption, thus generating (26b), where *shi* ‘be’ is not present.

(27) is an example of contrast sluicing. The derivation of (27) is the same as that in (26), with the *wh*-phrase *jizhi gou* ‘how many dogs’ undergoing focus movement to [Spec, FocP] and with *shi* ‘be’ moving from Foc to Force or remaining in Foc. However, the Focus Condition on IP-ellipsis is satisfied a little bit differently than the one in (26). Concretely, the nominal expression *wuzhi mao* ‘five cats’ is regarded as a focus in the first half and *jizhi gou* ‘how many dogs’ is regarded as focus in the second half. Therefore, the Focus-closure of IPE can be represented as “Focus-clo(IP_E) = Ǝx. *Xiaoming yangle x* ‘Xiaoming raises x,’” and the Focus-closure of IP_A can be expressed as “Focus-clo(IP_A) = Ǝx. *Xiaoming yangle x* ‘Xiaoming raises x.’” Since the Focus-closure of IP_A and the Focus-closure of IP_E mutually entail each other, IP_E is licensed to be deleted at PF. With respect to *shi* ‘be,’ if it moves overtly, it will appear in front of the *wh*-phrase, as in (27a), but if it stays in-situ, it will be deleted along with its complement IP, as in (27b).

(28) is a typical sluicing that occurs in an embedded clause that does not involve negation. The derivation of (28) is the same as that of (26) and (27), where the complex *wh*-argument *nabu dianying* ‘which film’ has undergone focus movement to [Spec, FocP] and *shi* ‘be’ has moved from Foc to Force in (28a) but stayed in-situ in (28b), thus accounting for its presence and absence when the deletion operation takes place at PF.

Nonetheless, in (29) and (30), the simplex *wh*-adjunct *shenme shihou* ‘what time’ and the complex *wh*-adjunct *yong shenme fangfa* ‘with what methods’ are assumed to be base-generated in [Spec, FocP] and are associated with their implicit correlates, namely, *mouge shihou* ‘some time’ and *yong mouzhong fangfa* ‘with a certain method,’ in the antecedent clauses respectively. Likewise, *shi* ‘be’ can remain in-situ or move from Foc to Force. Since the Focus Condition on IP-ellipsis is satisfied in (29) and (30) with IP_A and IP_E mutually entailing the Focus-closure of each other, IP_E is licensed to be deleted at PF. Accordingly, in (29a) and (30a), when *shi* ‘be’ has undergone head movement, it survives the deletion operation and appears in front of the *wh*-phrases, while in (29b) and (30b), where *shi* ‘be’ remains in-situ, it is deleted along with the complement IP.

So far, we have discussed that the two simplex *wh*-arguments, *shei* ‘who’ and *shenme* ‘what,’ and the simplex *wh*-adjuncts that are associated with one of the attributes of the correlate in the antecedent clause appear in pseudo-sluicing. Moreover, complex *wh*-arguments, complex *wh*-adjuncts, and simplex *wh*-adjuncts appear in typical sluicing. However, there is one exception. It is observed that the simplex *wh*-adjunct *zenmeyang* ‘how’ cannot occur in either typical sluicing or pseudo-sluicing.
(31) a. *Xiaoming tongguo le mianshi, danshi women bu zhidao
Xiaoming pass ASP interview but we not know
[\text{FocP} \{\text{zenmeyang} \{\text{shi} \} \} \{\text{shis} \} \{\text{Xiaoming tongguo le mianshi}\}].
how be Xiaoming pass ASP interview
‘Xiaoming has passed the interview, but we don’t know how.’
b. *Xiaoming tongguo le mianshi, danshi women bu zhidao
Xiaoming pass ASP interview but we not know
pro (shi) zenmeyang.
pro be how
‘Xiaoming has passed the interview, but we don’t know how.’

(32) a. Xiaoming tongguo le mianshi, danshi women bu zhidao
Xiaoming pass ASP interview but we not know
zenmeyang tongguo le mianshi.
how pass ASP interview
‘Xiaoming has passed the interview, but we don’t know how.’
b. Xiaoming tongguo le mianshi, danshi women bu zhidao
Xiaoming pass ASP interview but we not know
[\text{FocP} \{\text{yong shenme fangfa} \{\text{shi} \} \} \{\text{shis} \} \{\text{Xiaoming tongguo le mianshi}\}].
use what methods be Xiaoming pass
le mianshi.
ASP interview
‘Xiaoming has passed the interview, but we don’t know with what methods.’

It is indicated in (31a) and (31b) that the simplex \textit{wh}-adjunct \textit{zenmeyang} ‘how’ can appear neither in typical sluicing nor in pseudo-sluicing. In contrast, (32a) and (32b) have the same interpretation as that conveyed in (34) by attaching the \textit{wh}-adjunct \textit{zenmeyang} ‘how’ to the VP \textit{tongguo le mianshi} ‘pass the interview’ and by converting the \textit{wh}-adjunct into a PP \textit{yong shenme fangfa} ‘with what methods’ respectively. The ungrammaticality of \textit{zenmeyang} ‘how’ in typical sluicing can be explained by our analysis. According to our assumption that \textit{wh}-phrases are regarded as focus and they either undergo focus movement to [Spec, FocP] or are base-generated in [Spec, FocP], it is impossible for the \textit{wh}-adjunct \textit{zenmeyang} ‘how’ to be focused in Chinese, as in (33).

(33) a. Xiaoming (shi) zenmeyang tongguo le mianshi?
Xiaoming be how pass ASP interview
‘How did Xiaoming pass the interview?’
b. *Shi zenmeyang Xiaoming tongguo le mianshi?
be how Xiaoming pass ASP interview
‘How did Xiaoming pass the interview?’
It is shown in (33a) that zenithmeyang ‘how’ can stay in-situ and be preceded by the focus marker shi ‘be.’ However, the ungrammaticality of (33b) indicates that zenithmeyang ‘how’ cannot be preposed and occur in a focus position at the left periphery of an IP. Therefore, zenithmeyang ‘how’ cannot occur in typical sluicing where a wh-phrase is assumed to undergo a focus movement and occur in a focus position. Furthermore, the ungrammaticality of zenithmeyang ‘how’ in pseud sluicing, as in (33b), is due to the fact that the empty pro cannot locate a possible correlate in the antecedent clause and therefore no connection can be formed between the correlate, the empty pro, and the wh-adjunct. Therefore, the wh-adjunct zenithmeyang ‘how’ can occur neither in typical sluicing nor in pseudo sluicing.

With respect to typical sluicing with matrix clauses, Merchant (2004) argues that fragmentary utterances have fully sentential syntactic structures and are subject to ellipsis. Therefore, (34a) is supposed to be derived from (34b), with the overt movement of the NP and the deletion of the constituents following it.

(34) a. Who did John love?
   b. [FocP [Mary], tion john loved t].

In (34b), the NP Mary has moved from the complement of the predicate love to [Spec, FocP] with a subsequent deletion of IP at PF, thus generating the fragmentary sentence.  

On the basis of the approach adopted by Merchant to deal with fragmentary utterances, I also assume that in typical sluicing that appears in matrix clauses, the wh-phrase does not stand alone but is derived from a full-fledged syntactic structure which involves movement and deletion.

(35) a. — Xiaoming xihuan yiwei nühai.
   Xiaoming like a girl
   ‘Xiaoming loves a girl.’
   — [FocP [Nawei nühai], tion shi] tion (Xiaoming xihuan t)?
   which girl be Xiaoming like
   ‘Which girl?’

b. — Xiaoming xihuan yiwei nühai.
   Xiaoming like a girl
   ‘Xiaoming loves a girl.’
   — [ForceP [Force shi] [FocP [nawei nühai], tion t] tion (Xiaoming xihuan t)?
   be which girl Xiaoming like
   ‘Which girl?’
(36) a. — *Xiaohong mai le yitao fangzi.*
Xiaohong buy ASP an apartment
‘Xiaohong bought an apartment.’

<math>
- [\text{FocP} \{\text{shenme difang} \} \{\text{shi} \} \{\text{maile} \} \{\text{Xiaohong buy ASP} \} \{\text{yitao fangzi} \}]
\end{math}

an apartment
‘Where?’

b. — *Xiaohong mai le yitao fangzi.*
Xiaohong buy ASP an apartment
‘Xiaohong bought an apartment.’

<math>
- [\text{ForceP} \{\text{shi} \} \{\text{FocP} \{\text{shenme difang} \} \{\text{maile} \} \{\text{Xiaohong buy ASP} \} \{\text{yitao fangzi} \}]
\end{math}

an apartment
‘Where?’

In (35), the complex *wh*-argument *nawei nühai* ‘which girl’ seems to be an independent fragment, but, according to our assumption, it is part of a fully sentential structure out of which the *wh*-argument has moved with subsequent deletion of the rest of constituent at PF. Specifically, *shi* ‘be’ is base-generated in Foc and attracts the *wh*-argument to undergo focus movement to [Spec, FocP]. Besides, *shi* ‘be’ can either stay in Foc or move from Foc to Force. Therefore, *shi* ‘be’ will be deleted along with IP if it stays in-situ, as in (35a), while it survives deletion and appears in front of the *wh*-argument if it has undergone movement, as in (35b).

In a parallel fashion, in (36), the *wh*-adjunct *shenme difang* ‘what place’ is not an isolated element. We assume that it is base-generated in [Spec, FocP] followed by an IP. *Shi* ‘be’ is base-generated in Foc and can move further to Force or remain in-situ. At PF, the IP, together with whatever is in Foc, is deleted, thus producing the well-formed syntactic structure in (36).

4 Conclusion

This article has discussed the syntax of sluicing in Chinese and its related issues, including the syntactic constraints on predicates that might appear in sluicing, the reclassification of *wh*-phrases, the syntactic status of *shi* ‘be’ and *you* ‘have,’ and the syntactic derivation of typical sluicing and pseudo-sluicing. Empirically, this article has enabled us to gain a better understanding of the syntactic representations and distributions of the phenomenon of sluicing in Chinese and its close interaction with
other components, such as *wh*-phrases, *shi* ‘be,’ and *you* ‘have.’ Theoretically, this article has offered a unified account of the two closely related syntactic structures. Furthermore, since this study assumes that *wh*-phrases are able to undergo overt movement and occur at the left periphery of an IP in sluicing, it offers us an alternative of looking at the nature of *wh*-phrases in the sense that they have the potential of moving overtly even though they have long been regarded as staying in-situ. However, challenges still remain in terms of the validity of the focus movement of *wh*-phrases. In addition, the analysis of island effects and the extension to multiple-sluicing have not been covered in this research. These issues may be resolved with a more thorough and more systemic investigation into the intrinsic nature of sluicing in Chinese and with the support of more linguistic data. Therefore, more work needs to be invested in future research in this field so that the analysis can be refined and extended to a wider range of similar elliptical constructions.

**Research funding:** This work was supported by the Social Science Planning Fund of Liaoning of 2020 (Grant Number L20BYY018).

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