



## *You* Sluice and *hai* Modification in Chinese

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### Abstract

This paper argues that *you* ‘have’ sluice is a variant of pseudosluicing, akin to *shi* ‘be’ sluice in Chinese. *You* sluice can be analyzed as a base-generated structure [pro *you* ‘have’ *wh*-phrase], consisting of a subject *pro*, a verb *you* ‘have’, and a *wh*-phrase, having nothing to do with movement and deletion. In this simple clause, the *pro* can either refer to a nominal antecedent or an event antecedent; *you* ‘have’ mainly denotes possessive or existential readings as well as extended attributive uses. This analysis further reveals how circum-phrase *chule ... yiwei* ‘besides’ semantically and syntactically interacts with *hai* ‘still’ in *you* sluice to express *else* modification in English sluicing derived by movement and deletion.

### Keywords

*hai*, *else*, possessive, existential, sluicing, pseudosluicing

## 1. Introduction

Merchant (2001:36-7) has proposed a sort of English sluicing involving *else* modification as given in (1).

- (1) a. She called Ben an idiot, but I don't know *who else* [~~she called an idiot~~].  
 b. Abby speaks Greek, but I don't remember *what other languages* [~~Abby speaks~~].

He claims that the sluice can be analyzed by Focus condition on IP-ellipsis.<sup>1</sup> The “sluice” in (1a) is defined as a structure containing the focus element *Ben* in the argument position of the first conjunct and the focused *wh*-nominal *who else* in the argument position of the second conjunct. These two focused elements can be analyzed as variables as in (2), contributing to the satisfaction of the mutual entailment, as illustrated in (3). Thus, the IP in the second conjunct is e-GIVEN and is eligible to be elided. Similar analysis can be applied to (1b).

(2) She called Ben an idiot, but I don't know who else [she called *x* an idiot].<sup>2</sup>

- (3) a.  $IP_A = \exists x$ .she called *x* an idiot,  $F\text{-clo}(IP_E) = \exists x$ .she called *x* an idiot.  
 b.  $IP_E = \exists x$ .she called *x* an idiot,  $F\text{-clo}(IP_A) = \exists x$ .she called *x* an idiot.

We may wonder whether this type of sluice can be found in *wh-in-situ* languages, such as Chinese. As can be seen in (4), its counterpart in Chinese is prohibited. When the *wh*-words containing the modifier *qita* ‘other’ appears, the sentence becomes ungrammatical, in contrast to the related structure commonly recognized as a sluicing in (5). The ungrammaticality of (4) seems to imply that Chinese has no counterpart of “*else*” modification in English sluicing.

- (4) \*Ta jian-dao le Lisi, dan wo bu zhidao (shi) qita shenme ren  
 he see-arrive<sub>LE</sub> Lisi, but I not know be other what person  
 [~~ta jian-dao le~~].  
 he see-arrive<sub>ASP</sub>  
 ‘(lit.) He saw Lisi, but I don't know who else/what other person (he saw).’
- (5) Ta jian-dao le yi-ge ren, dan wo bu zhidao shi shei/ (shi)  
 he see-arrive<sub>LE</sub> one-CL person but I not know be who be  
 shenme ren.  
 what person  
 ‘He saw someone, but I don't know who/what person.’

1 The Focus condition on ellipsis (Merchant 2001:26) is formulated in (i). The *e* here stands for ellipsis. Whether a constituent is e-GIVEN depends on its antecedent. The notion of e-GIVENNESS is further defined as in (ii).

(i) An IP *a* can be deleted only if *a* is e-GIVEN.  
 (ii) e-GIVENNESS

An expression *E* counts as e-GIVEN if *E* has a salient antecedent *A* and, modulo  $\exists$ -type shifting,  
 (a) *A* entails  $F\text{-clo}(E)$ , and (b) *E* entails  $F\text{-clo}(A)$ .

2 Romero (1998:31) asserts that natural semantics for *else* considers the implicit argument of *else* to be the *F*-marked constituent.

In fact, the existence of “else” modification sheds light on the structure of sluicing. Merchant (2001:122) has observed that the modifier *else* following *wh*-words can occur in sluicing, but not in cleft-like pseudosluicing (Merchant 2001:122) as in (6).

(6) Harry was there, but I don’t know who else (\*it was).

Along this line, it seems that the prohibition of *qita* ‘other’ in (4) complies with the fact that Chinese sluicing is a cleft-like pseudosluicing analysis. In other words, sluice clause in Chinese is a simple clause, consisting of a subject *pro* (instead of explicit *it* in English), copula *shi* ‘be’, and *wh*-word without involving any movement as in (5) (Adams 2003, Adams and Tomioka 2012, Wei 2004, 2011, and Li and Wei 2014).

Reasonable as it seems, an empirical problem arises. Virtually, we find that the optional modifier *qita* in (4) does not play a role in expressing “else” modification in Chinese sluicing but the adverb *hai* ‘still’ and the verb *you* ‘have’ do. By attaching *hai you* ‘still have’ in front of the *wh*-phrase in (7), the equivalent meaning and function of “else” can be obtained. We believe that this effect is activated by *hai* ‘still’ in company with the verb *you* ‘have’, the so-called *hai* modification.

(7) Zhangsan hui lai, dan wo bu zhidao\*(*hai you*) shei/(*qita*) shenme ren.

Zhangsan will come but I not know still have who other what person  
 ‘Zhangsan will come, but I don’t know who else will come (besides Zhangsan).’

The aim of this paper is to argue that (7) is a kind of *you* sluice in Chinese, whose existence does not jeopardize but instead supports the pseudosluicing analysis, on the basis of the fact that *shi* ‘be’ and *you* ‘have’ are parallel in their transitive and intransitive use (Huang 1988). This paper shows that *you* sluice can be naturally articulated under the simple sluice structure, [*pro you wh*-word]. In this structure, the subject *pro* can refer to a nominal antecedent or an event antecedent.

The organization of this paper is as follows. Section 2 introduces the properties of *you* sluice and the differences between *you* sluice and *shi* sluice. Section 3 focuses on how to interpret *hai* ‘still’ modification under pseudosluicing. Section 4 is a brief summary.

## 2. *You* ‘have’ sluice

Sluice involving *you* ‘have’ cannot take prepositional or adjunct *wh*-elements such as *weishenme* ‘why’ as its complements. Such a restriction is closely related to the fact that there is a selectional restriction between *you* ‘have’ and the following *wh*-phrase. Based on this fact, we propose that [*pro you wh*-word] is the essential structure of *you* sluice in Chinese, lending support to the pseudosluicing analysis.

### 2.1 Possessive and existential *you* sluice

The properties of *you* sluice can be displayed from three respects: (i) the selectional restriction between *you* ‘have’ and the following *wh*-phrase, (ii) the interpretation of *you*, and (iii) parallelism.

First, *you* sluice cannot co-occur with prepositional *wh*-adjuncts, such as *weishenme* ‘why’ and *weileshenme* ‘for what purpose’ as in (8a-b), but if the *wh*-adjuncts are replaced with nominal *wh*-words denoting the similar meanings, such as *shenme-yuanyi/shenme-liyou* ‘what reason’ and *shenme-mudi* ‘what purpose’, respectively, *you* sluice is allowed in (9). It reveals that there is a selectional restriction between *you* ‘have’ and the *wh*-phrase. Only nominal *wh*-words can appear after the verb.

- (8) a. \*Zhangsan bu neng lai, dan wo bu zhidao you *weishenme*.  
 Zhangsan not can come but I not know have why  
 ‘(lit.) Zhangsan cannot come, but I don’t know why there is.’
- b. \*Zhangsan yiding yao lai, dan wo bu zhidao you *weileshenme*.  
 Zhangsan certainly will come but I not know have for.what.purpose  
 ‘(lit.) Zhangsan certainly will come, but I don’t know what purpose there is.’
- (9) a. Zhangsan bu neng lai, dan wo bu zhidao you *shenme-yuanyi*.  
 Zhangsan not can come but I not know have what-reason  
 ‘(lit.) Zhangsan cannot come, but I don’t know what reason he has for his not coming.’  
 ‘(lit.) Zhangsan cannot come, but I don’t know what reason there is for the fact that he cannot come.’
- b. Zhangsan yiding yao lai, dan wo bu zhidao you *shenme-mudi*.  
 Zhangsan certainly will come but I not know have what-purpose  
 ‘(lit.) Zhangsan certainly will come, but I don’t know what purpose Zhangsan has.’  
 ‘(lit.) Zhangsan certainly will come, but I don’t know what purpose there is for the fact that he certainly will come.’

Second, according to Huang (1987, 1988), the verb *you* ‘have’ has two sorts of use: transitive and intransitive use. The transitive *you* ‘have’ conveying possessive reading involves two arguments. The subject argument can be a possessor in (10a), denoting possessive reading, or location in (10b), denoting locational possessive reading. One of the characteristics of the possessive *you* ‘have’ is that it can take indefinite or definite object argument.<sup>3</sup> As to the pure intransitive existential *you*, it only takes one indefinite argument as in (10c).<sup>4</sup>

3 Somewhat different from Huang’s (1988) judgments, Tsai (2002) considers that the definite object in locative existential is not viable.

4 From the perspective of historical syntax, Tsai (2002) argued that *you* ‘have’ has undergone a process of semantic extension in the following sequence: possessive > locative existential > existential. In a sense, this order is in conformity with Huang’s analysis on the verb *you*. In this squib, we will recognize location possessive in (10b) as a structure being at a stage between pure possessive and pure existential constructions.

- (10) a. *Ta you yi-ben shu/ zhe-ben shu.* (Possessive)  
 he has one-CL book this-CL book  
 ‘He has a book/this book.’
- b. *Jiaoshi li you yi-ben shu/ zhe-ben shu.* (Locative possessive)  
 classroom inside has one-CL book this-CL book  
 ‘(lit.) In the classroom there is a book/the book.’
- c. *You yi-ben shu zai jiaoshi li.* (Existential)  
 EX one-CL book at classroom inside  
 ‘There is a book in the classroom.’

When *you* appears in sluice as in (9a), the sluice clause [*you shenme-yuanyin*] ‘have what reason’ ambiguously yields two meanings. One is ‘what reason he (Zhangsan) has/owns for his not coming,’ which indicates that *you* ‘have’ is a transitive verb with two arguments: the subject possessor *ta* ‘he’ and the *wh*-object possessee *shenme-yuanyin* ‘what reason’. The other meaning of (9a) is ‘what reason there is for the fact that he (Zhangsan) cannot come.’ Under this circumstance, the possessive *you* takes the situation that Zhangsan cannot come as an event subject and the *wh*-word *shenme-yuanyin* ‘what reason’ as the object. In other words, the situation may accommodate reasons for his absence, conveying a kind of existential reading, ‘what reason there is for the fact that he cannot come’. In that sense, *you* ‘have’ here, also being a kind of possessive transitive verb, contains two arguments. The similar ambiguity also arises in (9b).<sup>5</sup>

One more fact of *you* in regards to the notion of parallelism is that *you* ‘have’ in the second conjunct cannot find its semantic or syntactic correlate in the first conjunct. It means that the verb *you* is independently present in the sluice clause and the clause where *you* appears is not derived from the deletion of a non-elliptical structure parallel to the antecedent clause (Fox and Lasnik 2003). This property of *you* is akin to that of the copula *shi* in Chinese sluicing in (5).

Based on the above three properties, the selectional restriction between *you* and *wh*-phrase, the transitive use of *you*, and non-parallel *you*, we will propose that *you* sluice is a variant of pseudosluicing, containing an implicit subject *pro*, the verb *you*, and *wh*-phrase, in the sluice clause, akin to *shi* ‘be’ sluice, [*pro*, (*shi*), *wh*-phrase] (Adams 2003, Wei 2004, 2011, Adams and Tomioka 2012, Li and Wei 2014). Before turning to the analysis of *you* sluice, let’s see how *shi* sluice sheds light on the operation in *you* sluice.

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5 Some native speakers accept (i) with aspectual marker *zhe* after *you*, supporting the possessive analysis (Huang 1988), whereas some don’t. It indicates that the use of *you* in sluice is not stable when *zhe* appears.

(i) *Zhangsan bu neng lai, dan wo bu zhidao you zhe shenme-yuanyin.*  
 Zhangsan not can come but I not know have ASP what-reason  
 ‘(lit.) Zhangsan cannot come, but I don’t know what reason he has had for his not coming.’  
 ‘(lit.) Zhangsan cannot come, but I don’t know what reason there has been for the fact that he cannot come.’

## 2.2 *Shi* sluice and pseudosluicing analysis

The major difference between *you* sluice and *shi* sluice lies in the use of the adjunct *wh*-word. *Wh*-adjuncts such as *weishenme* ‘why’ and *weileshenme* ‘for what purpose’ are legitimate in *shi* sluice in (11), but not in *you* sluice in (8). We believe that the discrepancy lies in the different functions of *you* ‘have’ and *shi* ‘be’ in sluicing.

- (11) Zhangsan bu neng lai, dan wo bu zhidao (shi) weishenme/weileshenme.  
 Zhangsan not can come but I not know be why for.what.purpose  
 ‘Zhangsan cannot come, but I don’t know why/for what purpose.’

According to Wei (2004, 2011), Adams and Tomioka (2012), Li and Wei (2014), the occurrence of *shi* ‘be’ depends on whether *wh*-phrase is predicative or not.<sup>6</sup> When a *wh*-phrase is non-predicative, the copula verb is obligatory, whereas when a *wh*-phrase is predicative, *shi* ‘be’ becomes optional as an emphatic marker.<sup>7</sup> For example, the *wh*-phrase *shei* ‘who’ in (12a) is not a predicate; thus, the copular *shi* is obligatory. In contrast, since *wh*-adjunct *weishenme* ‘why’ in (12b) can be decomposed into a preposition *wei* ‘for’ and *wh*-word *shenme* ‘what’, the *wh*-adjunct is virtually a prepositional phrase, being eligible to be a predicate. In this case, the copular *shi* ‘be’, serving as an emphatic marker, is optional. The difference between (12b) and (12c) is that the *wh*-phrase *shenme-yuanyin* ‘what reason’ in (12c) is a nominal predicate, in which *shenme* ‘what’ morphologically

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6 Wang (2002) and Wang and Wu (2006), extending the movement and deletion approach (Merchant 2001) to Chinese sluicing, argue that the *wh*-phrase is a focused constituent, which undergoes raising to the left periphery of the clause. Then IP-deletion applies, deriving a counterpart to English sluicing. Due to the limited space, we will not discuss the argument for pseudosluicing analysis and against the movement and deletion analysis. Readers can refer to Wei (2004, 2011), Li and Wei (2014), Adams (2003), Adams and Tomioka (2012), among others for more details.

7 The predication analysis of sluicing, proposed by Wei (2004, 2011) and also agreed by Adams and Tomioka (2012), argues that the non-predicative group includes only two *wh*-words: *shei* ‘who’ and *shenme* ‘what’, whereas the latter group extends to cover all other *wh*-elements in Mandarin. The predicative *wh*-words can be further classified into three types according to the type of predication: (i) the modificational type, in which predication is derived from a modifier-modifiee relation within the *wh*-phrase, e.g. [*shenme* [*ren*]] ‘what person’ and [*shenme* [*dongxi*]] ‘what thing’, (ii) the prepositional type, in which predication is mediated via a preposition, e.g. *wei* ‘for’ in *weishenme* ‘for what’, and (iii) the adjectival type, e.g. *duo-gui* ‘how expensive’, in which predication results directly from the adjective itself. The two simplex *wh*-words, *shei* ‘who’ and *shenme* ‘what’, do not fit into the three predicational patterns. That is the reason why the copular *shi* is obligatory.

modifies the head noun *yuanyin* ‘reason’,<sup>8</sup> in contrast to the prepositional predicate *weishenme* ‘why’ in (12b). Thus, all types of *wh*-phrase can be preceded by the verb *shi*.<sup>9,10</sup> Next, let’s see how *pro* gets interpreted.

- (12)a. Zhangsan kanjian yi-ge ren, dan wo bu zhidao [pro \*(shi) shei].  
 Zhangsan saw one-CL person but I not know be who  
 ‘Zhangsan saw someone, but I don’t know who.’
- b. Zhangsan bu neng lai, dan wo bu zhidao [pro (shi) weishenme].  
 Zhangsan not can come but I not know be why  
 ‘Zhangsan cannot come, but I don’t know why.’
- c. Zhangsan bu neng lai, dan wo bu zhidao [pro (shi) shenme-yuanyin].  
 Zhangsan not can come but I not know be what-reason  
 ‘Zhangsan cannot come, but I don’t know what reasons.’

The *pro* subject, as claimed by Wei (2004, 2011), Adams (2003), and Adams and Tomioka (2012), is an event *pro*, assuming the semantic function of the *wh*-phrase via predication and further referring to the correlate of the same semantic function in the logical form. There is a discrepancy between event *pro* with overt antecedent and that with covert antecedent. The former refers to a realized content-laden object, while the latter refers to a presupposed/implied object. Put simply, the construal of the *pro* might be associated with a covert or overt thematic function of a specific predicate in LF, involving the notion of event as argument (Davidson 1967, Parsons 1990). On the one hand, the *pro* in (12a) can refer to the indefinite overt antecedent, *yi-ge ren* ‘a person’; on the other, it also can refer to the definite description, the person that *Zhangsan* saw, in the sense of Evans’ (1980) e-type pronoun. As to (12b, c), the *pro* is referential with the covert peripheral “reason” argument of the event that *Zhangsan* cannot come in line with Parsons’ (1990) event structure.

### 2.3 *You* sluice as a variant of pseudosluicing

Under the pseudosluicing frame [*pro*, *you*, *wh*-phrase], we propose that the interpretation of *pro* is closely related to the possessive use of *you*.

8 The idea of modificational predication relates to patterns found with nominal predicate constructions in Mandarin Chinese as in (1). Readers can refer to Wei (2004, 2007) and Zhang (2009) for more details.

(i) a. Zhangsan [\* (Taiwan) [ren]]  
 Zhangsan Taiwan people  
 ‘Zhangsan is a Taiwanese.’

b. Zhe haizi [\* (da) [yanjing]].  
 this child big eye  
 ‘The child has big eyes.’

9 The only exception is *zhemeyang* ‘how’. Owing to the limit of space, readers can refer to Li and Wei (2014) for more details.

10 The division of *shi* in pseudosluicing complies with Huang’s (1988) analysis on the transitive/intransitive use of *shi* ‘be’. The obligatory *shi* ‘be’ in front of *wh*-phrases *shei* ‘who’ and *shenme* ‘what’ is analogous to the transitive *shi*, a two-place predicate forming identificational or specificational copulative sentences. On the other hand, the optional *shi* ‘be’ preceding the other *wh*-phrases acts like an intransitive *shi* ‘be’, being a focus-oriented raising auxiliary in sluice.

Let's turn to how (9), as repeated in (13), gets interpreted under pseudosluicing analysis. The possessive verb *you* 'have', a two-term predicate, requires a possessor to be its subject and a theme argument *shenme yuanyin* 'what reason' to be its object. In this case, the subject *pro* will refer to the animate *Zhangsan* in the first conjunct, who "owns" the reasons of not coming as a possessor. On the other hand, if the *pro* subject takes the correlative event occurring in the first conjunct as its referent, the structure with possessive *you* 'have', taking event *pro* as subject argument and *shenme yuanyin* 'what reason' as theme argument, denotes 'what reason there is for the fact that *Zhangsan* cannot come.' More specifically, the subject *pro* acts like an E-type *pro* (Evans 1980), referring to the previous event 'Zhangsan cannot come.'

- (13) *Zhangsan bu neng lai, dan wo bu zhidao [pro you shenme-yuanyin].*  
*Zhangsan not can come but I not know have what-reason*  
 '(lit.) Zhangsan cannot come, but I don't know what reason he has for his not coming.'  
 '(lit.) Zhangsan cannot come, but I don't know what reason there is for the fact that he cannot come.'

Summing up, we can say that the antecedents of *pro* can be a nominal or an event, each of which matches the possessive use of *you* in sluice clause. The question that follows is why *wh*-adjuncts such as *weishenme* 'why' and *weileshenme* 'for what purpose' in (8) cannot be used in *you* sluice, in contrast to the *wh*-nominals such as *shenme-yuanyin* 'what reason' and *shenme-mudi* 'what purpose' in (9). The answer lies in the argument structure of the verb *you* 'have', which requires a canonical nominal theme argument, rather than a peripheral adjunct argument. Thus, the proposed pseudosluicing analysis can naturally capture the grammatical contrast between (8) and (9), without resorting to any ad hoc stipulation.

One of the reviewers raises the question of why (14a) is unacceptable if the *pro* preceding *you* 'have' refers to the covert peripheral argument of the event, time or place, just like the *pro* preceding *shi* 'be' in (14b) in the pseudosluicing sentence.

- (14) a. \**Zhangsan lai le, dan wo bu zhidao [pro you shenme shijian/difang]*  
*Zhangsan come LE but I not know have what time place*  
 'Zhangsan came, but I don't know what time/place exists for the time/place of the event.'  
 'Zhangsan came, but I don't know what time/place he had.'  
 b. *Zhangsan lai le, dan wo bu zhidao [pro shi shenme shijian/difang]*  
*Zhangsan come LE but I not know be what time place*  
 'Zhangsan came, but I don't know what time/place it was.'

We find that this puzzle is closely related to another difference between *you* sluice and *shi* sluice in particular on the condition that the *wh*-phrases are the so-called adjuncts or peripheral arguments of an event (Parsons 1990) and that the antecedent of *pro* is covert. When Wei (2004, 2011), Adams (2003), and Adams and Tomioka (2012) argues that the event *pro* in (14b) is referential with the covert

peripheral argument (time or place) of the event, the sluice is interpreted as ‘what time/place is the time/place of the event that Zhangsan came’. The *shi* focuses on the time/place of the event on both subject and predicate. In contrast, in *you* sluice in (14a), the interpretation of *pro* is ambiguous, as argued in this paper. On the one hand, it may refer to *Zhangsan* as a possessor and the entire sluice denotes ‘what time/place did Zhangsan have’. On the other, the *pro* may refer to the event of Zhangsan’s coming. In this case, the sluice denotes ‘what time/place there is for the event that Zhangsan came.’ However, these two interpretations are invalid, as shown in (14a). The oddity of (14a) is in contrast with the acceptability of (15), also a *you* sluice structure. When the event of *Zhangsan*’s coming has not happened, the *you* sluice is acceptable, either when *pro* refers to *Zhangsan* as a possessor or when *pro* refers to the event.’ The contrast between (14a) and (15) may lead us to a possible answer to the question of why (14a) is unacceptable. That is, since *Zhangsan* has already come to a certain place at a certain time, it is inappropriate to ask what place/time he has or what place/time exists for his coming. Therefore, the ungrammaticality of (14a) may be attributed to semantic conflict between the antecedent clause and sluice clause.

- (15) Zhangsan dei/bixu lai, dan wo bu zhidao [pro you shenme shijian]  
 Zhangsan has.to come but I not know have what time  
 ‘Zhangsan has to come, but I don’t know what time exists for his coming.’  
 ‘Zhangsan has to come, but I don’t know what time he has.’

#### 2.4 Some extensions of *you* sluice

If *you* sluice with possessive reading is on the right track, we can apply this analysis to some relevant examples to see if this pseudosluicing-like account can explain some variants of *you* sluice, particularly those containing *wh*-phrases denoting quantity and degree.

The ambiguity in (16) can be explained by the construal of *pro*. When *pro* refers to the animate possessor matrix subject, *ta* ‘him’ as in (16a), the entire sluice denotes the meaning, ‘how many (cats) he owns.’ On the other hand, when the antecedent of *pro* carries an E-type interpretation (Evans 1980) relating to the correlative event as in (16b), with a definite description ‘the cats that he raises’, the *pro* here is deemed as an E-type pronoun. The second conjunct means ‘I don’t know how many cats that he raises there are.’

- (16) *Ta yang mao*, dan wo bu zhidao [pro you jizhi].  
 he raise cat but I not know have how.many  
 a. (lit.) He raises cat, but I don’t know how many cats he owns.’  
 b. (lit.) He raises cat, but I don’t know how many cats that he raises there are.’

Interestingly, sluicing with *you* ‘have’ can also precede adjectival *wh*-words as in (15).

- (17) *Ta mai-le yi-dong fangzi, dan wo bu zhidao you duo gui*  
 he buy-LE one-CL house but I not know have how expensive  
 ‘(lit.) He bought a house, but I don’t know what degree of expensiveness there is for the house that he bought.’

Under the matrix [*pro you wh*-phrase], it is not feasible to co-index *pro* with the animate subject *ta* ‘him’, because when it comes to the degree of expensiveness, the target of the degree should be an object, not a human being. Thus, the meaning of ‘what degree of expensiveness he has’ is in conflict with our world knowledge. We propose that the *pro* refers to an E-type definite description, ‘the house he bought,’ the entire sluice clause in (17) expresses the meaning of ‘what degree of expensiveness there is for the house that he bought.’

To be brief, the construal of *pro* dominates the interpretation of *you* sluice structure. The *pro* in *you* sluice can refer to the animate subject, denoting possessor meaning or to an E-type reading, denoting existential reading. Without the verb *you* ‘have’, the sluice will be “automatically” interpreted as a pseudosluicing structure, in which the copula *shi* ‘be’ optionally appears between the subject *pro* and the *wh*-phrase. Below, we turn to *hai* ‘still’ modification in Chinese.

### 3. *Hai* modification in pseudosluicing

This section argues that the possessive use of *you* ‘have’ can function as “else” modification in English by attaching the adverb *hai* ‘still’ with *you* ‘have’ in the sluice clause, [*pro hai you wh*-phrase], as repeated below in (18).

- (18) *Zhangsan hui lai, dan wo bu zhidao [hai you shei]*  
 Zhangsan will come but I not know still have who  
 ‘Zhangsan will come, but I don’t know who else will come (besides Zhangsan).’

In (18), the sluice clause, *hai you shei* ‘who else’, articulates the meaning: ‘Besides *Zhangsan*, is there anyone else who will come?’ We propose that there is a covert subject *pro* in front of *hai you* as in (19). Further, whenever *hai you* appears in the sluice clause, a function word *chule* ‘besides’ can optionally appear in front of the antecedent *Zhangsan* in the first conjunct as in (20).<sup>11</sup> Further, *chule* ‘besides’ can co-occur with *yiwai* ‘outside’ in the final position of the first conjunct to form a circum-phrase, denoting the meaning ‘besides’. Note that the circum-phrase is not obligatory and can be naturally realized when *hai you* ‘still have’ appears in the sluice clause.

- (19) [*pro hai you wh*-phrase]

- (20) (*chule*) *Zhangsan hui lai (yiwai), wo bu zhidao [pro hai you shei]*.  
 besides Zhangsan will come outside I not know still have who  
 ‘Zhangsan will come; I don’t know who else will come (besides Zhangsan).’

11 Here, *chule* ‘besides’ might be considered as a preposition taking a NP complement or a complementizer leading a clause. We leave this for further research.

According to our previous analysis, the *pro* in (20) may refer to the animate matrix subject *Zhangsan*. If that is the case, the sluice clause conveys the meaning of *Zhangsan hai you shei* ‘who does Zhangsan still has,’ which is semantically anomalous. However, it is important to note that the antecedent of the *pro* should be restricted by the optional circum-phrase *chule ... yiwei* ‘besides’ in the antecedent clause. When *chule ... yiwei* ‘besides’ is imposed on the antecedent of *pro*, it means that the interpretation of the *pro* is also restricted by the circum-phrase.

More specifically, we propose that the *pro* in (20) refers to a set of persons besides *Zhangsan*, which can be literally articulated as *chule Zhangsan yiwei (de ren)* ‘the set of persons besides Zhangsan.’ It means that the *pro* is co-referential with a certain set, which is restricted by the circum-phrase *chule ... yiwei* ‘besides’ and which can be syntactically realized as a set of persons *ren* ‘person’ not including *Zhangsan*, a sort of nominal antecedent. In that sense, the entire sluice could be realized as [*chule Zhangsan yiwei (de ren)*] *hai you shei* ‘who else there is besides Zhangsan.’ The circum-phrase in the second conjunct *chule ... yiwei* is not overly present for two reasons. The subject *pro*, also being restricted by the circum-phrase, is implicit, so the appearance of the circum-phrase is not required. Even so, the “else” modification does not disappear, because the restrictor *hai* is still actively imposed on the empty subject, deducing the meaning of [*chule Zhangsan yiwei (de ren)*] *hai you shei* ‘who else there is besides Zhangsan,’ which is semantically denoted as ‘for which *x*, *x* is/are a person/persons other than Zhangsan, and *x* and Zhangsan will come’.<sup>12</sup> This view may be supported by two extended uses of *hai you* sluices, which involve either nominal *pro* or event *pro* antecedents as well as implicit restrictors as follows.<sup>13</sup>

An example of nominal *pro* within *hai you* sluice supports the nominal *pro* analysis in (20). Given the pseudosluicing analysis, *hai you* sluice is argued to

12 Here, the function of *hai* in sluice is akin to that of *than* in English as in (i), restricting the argument *Harry* in the first conjunct. Thus, we call *Zhangsan* the restrictor of *hai*.

(i) She talked to Harry, but I don’t know to who ELSE (than Harry). (Romero 1998:52)

In that sense, the operation of *hai* ‘still’ here conforms to Liu’s (2000) claim that “*Hai* is associated with a higher value, and its occurrence in a sentence entails another proposition already in the context, the one associated with a lower value.”

13 The two-tracked interpretation of *pro* in *you* sluice coincides with an extended use of *you* ‘have’ released in Tang (2016: 402-403). He argues that the attributive use of *you* ‘have’ can be taken as an extended use of possessive *you* ‘have’ in Mandarin Chinese. In particular, his examples (Tang 2016) clearly demonstrate that an event or a nominal can be the subject of the attributive use of *you* ‘have’, describing ‘achieving a certain degree of duration of an event, of weight, of distance, etc.’ as in (i).

(i) a. [ta zou-le] you san tian le.  
he leave-LE have three day LE  
‘He has left for three days.’

b. [zhe-tiao yu] you sigongjin.  
This-CL fish have four kilogram  
‘This fish weighs four kilograms.’

have a base-generated [*pro hai you wh-word*] structure. In (21), the *pro* refers to the explicit nominal antecedent *shizhengfu* ‘city government’. The sluice denotes ‘how far the city government is from the location of the speaker (here).’ On the surface, there seems to be no circum-phrase in the clause. In fact, we believe that the implicit circum-phrase, which works with the adverb *hai* ‘still’, plays a crucial role in interpreting *pro*.

- (21) wo yao qu shizhengfu, qing wen [*pro hai you duo yuan*].  
 I want go city.government please ask still have how far  
 ‘(lit.) I want to go to the city government; I would like to ask how far it is from here.’

We find that the subject *pro* in (21), which apparently refers to the nominal antecedent *shizhengfu* ‘city government’, should be translated as the distance between the location of the speaker and the city government. Meanwhile, despite the lack of the overt circum-phrase, the existence of the adverb *hai* ‘still’ in the second conjunct implies that before getting ‘here’, the speaker might have moved a certain distance, which is not included in the distance in question. We propose that the adverb *hai* ‘still’ in company with an implicit circum-phrase is imposed on the interpretation of the nominal *pro*. It is apparent that the sluice clause can be literally articulated as [*shizhengfu hai you duo yuan*] ‘how far it is from here to the city government’, which should be precisely translated as [*cong zheli dao shizhengfu (de juli) hai you duo yuan*] ‘what the distance between the location of the speaker (here) and the city government is, not including the distance that the speaker might have moved’. In other words, the *pro*, which on the surface refers to *shizhengfu* ‘city government’, should be denoted as the implicit nominal antecedent *juli* ‘distance’ between the two points.

In addition to the evidence of nominal *pro*, we also find that of event *pro* in another extended use of *hai you* sluice. It shows that the two-tracked analysis of *pro* is plausible.

- (22) ta kuai dao le, wo bu zhidao [*pro hai you jige zhongtou*].  
 he soon arrive<sub>LE</sub> I not know still have how.many hour  
 ‘(lit.) He will arrive soon; I don’t know how many more hours (from now till his arrival).’

In (22), the subject *pro* refers to an event antecedent, *ta kuai dao le* ‘he will arrive soon’. Though the circum-phrase *chule ... yiwei* ‘besides’ does not overtly exist, the adverb *hai* ‘still’ is imposed on the empty event *pro* subject, implying that his arrival may have been expected for some time. Thus, the entire sluice can be articulated as [*ta kuai dao (de shijian) hai you jige zhongtou*] ‘how many more hours (from now) there are for the event of his arrival, not including the previous expecting time.’

Furthermore, *chule ... yiwei* ‘besides’ not only affects the interpretation of the subject, but it also affects the interpretation of the predicate or the object as in (23).

- (23) Zhangsan (*chule*) yang (\**chule*) mao (*yiwei*), wo bu zhidao  
 Zhangsan besides raise besides cat outside I not know  
 a. [*pro hai you (qita) shenme-dongwu*].  
     still have other what-animal  
     ‘(lit.) Zhangsan raises cat, but I don’t know what other animals Zhangsan has (besides cat).’  
 b. [*pro hai zuo-le shenme*].  
     still do-ASP what  
     ‘(lit.) Zhangsan raises cat, but I don’t know what else Zhangsan has done (besides raising cat).’

In (23), the effect of *chule ... yiwei* ‘besides’ can reach up to the immediate VP *yang mao* ‘raise cat’ or even the non-adjacent nominal *mao* ‘cat’. In (23b), the whole VP is restricted by the circum-phrase, the empty subject *pro* refers to *Zhangsan* and the sluice clause articulates the meaning of ‘still doing something else besides raising cat.’ This paper is mainly concerned with (23a). The *pro* here is co-indexed with the subject *Zhangsan* and the optional restrictor *chule ... yiwei* has an effect on the object *mao* ‘cat’, yielding the meaning ‘I don’t know what animals (besides the cats that Zhangsan raises) he has’ in the second conjunct. That is, *you* ‘have’ here expresses the possessive reading. *Zhangsan* is the possessor, whereas ‘which animals (besides the cats that Zhangsan raises)’ is the possessee.

In fact, *you* ‘have’ in (23) may also exhibit existential reading on condition that the *pro* refers to the cats that *Zhangsan* raises, a definite description denoting an E-type reading as in (24). In the first conjunct, *chule ... yiwei* ‘besides’ is imposed on the cats that *Zhangsan* raises; in the second conjunct, the sluice clause focuses on the set of animals besides the cats that *Zhangsan* raises. Thus, the second conjunct can be translated as ‘what other animals there are besides the cats that *Zhangsan* raises,’ in which *you* ‘have’ in (24) expresses existential reading. The *pro* is co-referential with *mao* ‘cats’, which denotes the E-type reading ‘the cats that Zhangsan raises’ and which is restricted by the covert/overt restrictor *chule ... yiwei* ‘besides’. In other words, the *pro* is also restricted by the circum-phrase. Meanwhile, after *hai* modification, the entire sluice is translated as [*chule (Zhangsan yang de) mao yiwei (de dongwu) hai you (qita) shenme-dongwu*] ‘what other animals there are besides the cats that Zhangsan raises.’ The construal of *pro* is affected by *hai* modification in sluice clause, parallel to English *else* modification on the objects *cat* and *Mary* in (25).

- (24) Zhangsan (*chule*) yang (\**chule*) mao (*yiwei*), wo bu zhidao  
 Zhangsan besides raise besides cat outside I not know  
 [*pro hai you (qita) shenme-dongwu*].  
     still have other what-animal  
     ‘(lit.) Zhangsan raises cat, but I don’t know what other animals there are (besides the cats that Zhangsan raises).’

- (25) a. John raises cat, but I don't know *what other animals*.  
 b. John saw Mary, but I don't know *who else*.

Similar phenomenon can be identified in (26) and (27), both of which *wh*-phrases inquire reason and time, respectively. In (26), the verb *you* 'have' carries possessive meaning.

- (26) Zhangsan shuo ta (chule) ganmao bu neng lai (yiwei), wo bu zhidao  
 Zhangsan say he besides get.cold not can come outside I not know  
 [pro hai you (qita) shenme-liyou].  
 still have other what-reason  
 a. '(lit.) Zhangsan says he can't come because of the flu, but I don't know what other reasons he has (for his not coming) (besides catching cold).'

- b. '(lit.) Zhangsan says he can't come because of the flu, but I don't know what other reasons there are (for his not coming) (besides catching cold).'

To derive the meaning of (26a), the *pro* has to refer to the matrix animate subject *Zhangsan*, the possessor; thus the verb *you* 'have' denotes the possessive reading. The sluice clause denotes 'what other reasons (besides catching cold) *Zhangsan* has,' in which the *wh*-word (*qita*) *shenme-liyou* 'what other reasons (besides catching flu)' is the possessee. That is, the optional circum-phrase *chule ... yiwei* 'besides' restricts the reason *ganmao* 'catching cold' rather than *Zhangsan* or *ta* 'he'. As to (26b), the *pro* is an E-type *pro* because it refers to the event '*Zhangsan* cannot come'. The optional restrictor *chule ... yiwei* is imposed on the very reason of getting cold and the *wh*-word queries the existence of other reasons besides the reason of getting cold. In the meantime, after *hai* modification, the entire sluice clause denotes the meaning of 'what other reasons (besides catching cold) there are for his not coming.'

The sentence (27) manifests similar interpretations in regards to the possessive reading. The sluice clause contains a nominal *wh*-word *shenme-shijian* 'what time'. The optional circum-phrase precedes what it confines, *xingqisi* 'Thursday' in the first conjunct. Accordingly, (27a) articulates the possessive reading with the *pro* referring to the subject *ta* 'he', the possessor; the possessee is 'what other leisure time besides Thursday'. The entire sluice conveys the meaning of 'what other leisure time he has besides Thursday.' Moreover, (27b) carries a reading with the subject *pro* referring to a nominal antecedent, the set of days besides Thursday, [*chule*] *xingqisi ... (yiwai) de shijian* 'the days besides Thursday'. The entire sluice can be recovered as [*chule xingqisi yiwei (de shijian)*] *hai you (qita) shenme-shijian* 'what other leisure there is besides Thursday.'

- (27) Ta (*chule*) *xingqisi* you kong (*yiwai*), wo bu zhidao  
 he besides Thursday have free outside I not know  
 [pro hai you (qita) shenme-shijian].  
 still have other what time

- a. '(lit.) He is free on Thursday, and I don't know what other leisure time he has besides Thursday.'
- b. '(lit.) He is free on Thursday, and I don't know what other leisure time there is besides Thursday.'

#### 4. Conclusion

This paper concludes that *you* sluice belongs to the pseudosluicing family, akin to *shi* sluice in Chinese. We have demonstrated that *you* sluice can be naturally articulated under the base-generated clause structure, [*pro you wh-word*], with *pro* either referring to a nominal antecedent or an event antecedent and *you* 'have' denoting possessive or existential reading as well as the extended attributive uses. Furthermore, this analysis successfully captures the collaboration of the circumphrase *chule ... yiwei* 'besides' with the *hai* modification in Chinese *you* sluice, opening a way to a better understanding of *else* modification in sluicing structures.

#### Acknowledgments

I would like to express my gratitude to the two reviewers for kindly giving me precious opportunities and insightful suggestions to improve this paper in a more comprehensive way. Thanks are also due to Audrey Li, Dylan Tsai, Jo-Wang Lin, Luther Liu, and Jonah Lin for their valuable opinions and discussions. Research for this paper was supported by grants from the Ministry of Science and Technology in Taiwan (MOST 103-2410-H-017-006, 104-2410-H-017-014, 105-2410-H-017-029). The author is responsible for all errors that remain.

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Received: April 11, 2016

Accepted: March 13, 2017

## 漢語帶“有”的切割結構與“還”的修飾

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### 提要

本文論證漢語帶“有”的切割結構為一種由基底衍生的準切割結構，是由主語 *pro*、動詞“有”以及疑問詞所組成的簡單句，類似帶“是”的準切割句，此兩種準切割句之衍生與移位刪略無關。此準切割句中的主語 *pro*，可指涉一個名詞前行語或事件前行語；至於“有”則表達一種所有義或存在義，亦可用於描述屬性。此分析顯示，漢語帶“有”的準切割句，其限制詞“除了……以外”以及副詞“還”在語意及句法介面上相互作用，產生類似以移位刪略為主的英語切割句中 *else* 之修飾用法。

### 關鍵詞

還、*else*、所有義、存在義、切割結構、準切割結構