

TWO NOTES ON MULTIPLE SLUICING IN CHINESE AND JAPANESE*

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1. Introduction

In this article we consider the cases of reduction of interrogative clauses in Mandarin Chinese (henceforth, just Chinese) and Japanese where more than one remnant occurs. The phenomenon in which interrogative clauses are shrunk has been called sluicing since Ross (1969). The following is a typical example in English:

- (1) John hid something in the drawer, but I don't know what.

The verb in the second conjunct *know* selects an indirect question as its complement clause, but seemingly the complement only consists of the *wh*-phrase in (1). According to Ross (1969), the second conjunct is analyzed as follows:

- (2) I don't know [_{CP} what [_{TP} ~~John hid *t* in the drawer~~]]

The complement clause in question is assumed to have a full-fledged interrogative clausal structure underlyingly, with the TP part elided in PF under identity with the antecedent clause (ellipsis is indicated by the strikethrough). A similar phenomenon is observed in Chinese and Japanese (Inoue (1976), Takahashi (1994), and Wang (2002), among many others). The following are typical examples of sluicing in the languages ((3–4) are from Japanese and Chinese, respectively):¹

- (3) Ken-ga dareka-ni atta sooda. Dakedo boku-wa dare-ni
Ken-NOM someone-DAT met I.heard but I-TOP who-DAT
ka soozoodekinai.
Q cannot.imagine

'I heard Ken met someone. But I cannot imagine who.'

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¹ Just for expository convenience, we gloss the element *shi* used in the examples of Chinese sluicing as FOC, which stands for a focus marker, though it is used as a copula in other environments. See Wang (2002) for some discussions.

- (4) Lisi da-le mouren, dan wo bu zhidao shi shei.
 Lisi hit-ASP someone but I not know FOC who
 'Lisi hit someone, but I don't know who.'

In these cases, the second conjuncts contain incomplete embedded clauses, but they are interpreted in the same way as the following complete sentences:

- (5) Boku-wa Ken-ga dare-ni atta ka soozoodekinai.
 I-TOP Ken-NOM who-DAT met Q cannot.imagine
 'I cannot imagine who Ken met.'

- (6) Wo bu zhidao Lisi da-le shei.
 I not know Lisi hit-ASP who
 'I don't know who Lisi hit.'

It has been controversial in the literature whether cases of sluicing in Chinese and Japanese like (3–4) can be analyzed in the same way as their counterparts in English, and if not, how they should be treated (see, for instance, Nishiyama, Whitman, and Yi (1996), Saito (2004), Wang (2002), and Wei (2004)). In this article we impeachably call the phenomenon indicated in (3) and (4) sluicing just for ease of reference.

While each of the examples in (3) and (4) has just one *wh*-phrase in its incomplete embedded question, the focus here is put on cases of sluicing with more than one remnant, such as the following (Takahashi (1994) and Chiu (2007), among others):

- (7) Dareka-ga dareka-ni atta sooda. Dakedo boku-wa
 someone-NON someone-DAT met I.heard but I-TOP
 dare-ga dare-ni ka soozoodekinai.
 who-NOM who-DAT Q cannot.imagine
 '*Lit.* I heard someone met someone. But I cannot imagine who who.'

- (8) Mouren da-le Lisi, dan wo bu zhidao shi shei zainali.
 someone hit-ASP Lisi but I not know FOC who where
 '*Lit.* Someone hit Lisi, but I don't know who where.'

The example in (7) is from Japanese. Takahashi (1994) examines cases like that, calling the phenomenon multiple sluicing, which is intended to stand for sluicing with multiple remnants. (8) is a case of multiple sluicing in Chinese, which is closely studied by Chiu (2007).

The purpose of this article is to point out hitherto untouched facts about multiple sluicing in Chinese and Japanese, considering implications they have for comparative research on the two languages. The following discussion is two-fold: the first part is about the number of remnants in multiple sluicing, and the second part deals with cases of multiple sluicing with

what we call heterogeneous remnants, which have a combination of a *wh*-phrase and a non-*wh*-phrase as remnants.

2. The Number of Remnants

While the example of multiple sluicing in (7) has two remnants, Takahashi (1994) observes that there can be more remnants in a case of multiple sluicing in Japanese. Consider the following examples:

- (9) Dareka-ga kaikosareta sooda. Dakedo boku-wa dare-ga
 someone-NOM was.fired I.heard but I-TOP who-NOM
 itu donna riyuu-de ka soozoodekinai.
 when what reason-for Q cannot.imagine

'Lit. I heard someone was fired. But I cannot imagine who when for what reason.'

- (10) Dareka-ga nanika-o kakusita rasii. Boku-wa dare-ga
 someone-NOM something-ACC hid likely I-TOP who-NOM
 nani-o doko-ni donna huu-ni ka soozoodekinai.
 what-ACC where-at what manner-in Q cannot.imagine

'Lit. It seems someone hid something. I cannot imagine who what where in what way.'

The second sentences in (9) and (10) have three and four remnants, respectively. Both are perfectly acceptable.

Takahashi (1994) uses this fact to contrast Japanese with English, which appears to disallow multiple sluicing. Comparable examples in English such as the following are degraded:

- (11) a. Someone broke {something/someone's iPod}.
 b. *I don't remember who {what/whose iPod}.
- (12) a. Someone hit Mary.
 b. *I cannot imagine who when for what reason.
- (13) a. John hid something somewhere in his room.
 b. *Guess what where in what way for what purpose.

The examples in (11a), (12a), and (13a) serve to antecede the examples in (11b), (12b), and (13b), respectively, all of which contain sluiced embedded questions. (11b), (12b), and (13b) have two, three, and four *wh*-phrase remnants, respectively, and all of them are fairly degraded.²

² However, there are some good cases of multiple sluicing in English. Building on an observation made by Bolinger (1978), Nishigauchi (1998) points out the following example:

Assuming that sluicing in English and its Japanese counterpart both involve *wh*-movement to the specifier position of CP (henceforth, Spec-CP) followed by TP-deletion (Ross (1969)), Takahashi (1994) attributes the difference between the two languages noted just above to the absence or presence of a movement operation responsible for formation of complex *wh*-phrases. To illustrate, let us consider the following schematic derivation of a multiply sluiced CP with three remnants in Japanese:

- (14) a. [CP [TP ... WH₁ ... WH₂ ... WH₃ ...] C]
- b. [CP [TP ... WH₁ ... [WH₂ **WH₃ WH₂**] ... t₃ ...] C]
- ↑
- c. [CP [TP ... [WH₁ [WH₂ **WH₃ WH₂**] WH₁] ... t₂ ... t₃ ...] C]
- ↑
- d. [CP [WH₁ [WH₂ **WH₃ WH₂**] WH₁] [C' [TP ... t₁ ... t₂ ... t₃ ...] C]]
- ↑
- e. [CP [WH₁ [WH₂ **WH₃ WH₂**] WH₁] [C' [~~TP ... t₁ ... t₂ ... t₃ ...~~] C]]

Underlyingly the three *wh*-phrases occur inside TP as shown in (14a). In the next step indicated in (14b), the lowest *wh*-phrase adjoins to the intermediate *wh*-phrase by what Takano (2002) calls oblique movement. Then, as shown in (14c), the complex adjoins to the highest *wh*-phrase again by oblique movement. This newly created complex then undergoes *wh*-movement to the Spec-CP ((14d)), followed by TP-deletion ((14e)). The hypothesis that Japanese permits a *wh*-phrase to adjoin to another phrase c-commanding it is proposed by Saito (1994) and elaborated by Sohn (1994) (for supportive arguments, readers are referred to those references). Takahashi (1994) claims that this movement, or oblique movement, is crucially involved in derivation of multiply sluiced clauses. In so doing, Takahashi (1994) hypothesizes that it is an instance of scrambling, an optional adjunction operation responsible for the free word order phenomenon in languages like Japanese (Saito (1985, 1992)). Since English lacks scrambling (that is, English is not a free word order language), it follows that

- (i) a. I know that in each instance one of the girls got something from one of the boys.
 b. ?But they didn't tell me which from which.

Anteceded by (ia), (ib) contains an incomplete embedded question, which consists of two *wh*-phrases. Lasnik (2008) suggests that the sluiced clause in (ib) is derived in such a way that while the first *wh*-phrase undergoes normal *wh*-movement to the specifier position of CP, the second *wh*-phrase is dislocated out of TP by rightward movement (or extraposition), as shown below:

- (ii) they didn't tell me [CP which₁ [C' C [TP [~~TP t₁ got something t₂~~] [from which]₂]]]

Here the embedded TP is elided after the two *wh*-phrases evacuate TP as indicated. Lasnik (2008) observes that cases like (ib) are allowed only when their second remnants are eligible for extraposition independently. Being aware of the existence of cases like (ib), we assume, as stated in the text, that English disallows multiple sluicing in general, on the ground that it does not tolerate sluicing with more than two remnants.

the language disallows multiple sluicing.

Several authors argue that Takahashi's (1994) analysis of Japanese sluicing in terms of *wh*-movement followed by TP-deletion is afflicted with some problems. Notably it has difficulty accommodating the optional appearance of the copula verb in sluiced clauses. Thus, the second sentence in (3) can be expressed alternatively as follows:

- (15) Dakedo boku-wa dare-ni **da** ka soozoodekinai.
 But I-TOP who-DAT be Q cannot.imagine
 'But I cannot imagine who.'

Here the remnant *wh*-phrase is followed by the copula *da* 'be' and it is unexpected under Takahashi's (1994) analysis because the alleged source of (15) resists the occurrence of the copula. Compare the following examples with (5):

- (16) a. *Boku-wa [Ken-ga dare-ni atta **da** ka] soozoodekinai.
 I-TOP Ken-NOM who-DAT met be Q cannot.imagine
 b. *Boku-wa [Ken-ga dare-ni **da** atta ka] soozoodekinai.
 I-TOP Ken-NOM who-DAT be met Q cannot.imagine

In (16), the copula is placed either after or in front of the verb in the embedded clause: neither (16a) nor (16b) is possible. The fact that the copula optionally occurs in sluiced clauses in Japanese leads researchers like Kuwabara (1996), Nishiyama, Whitman, and Yi (1996), and Saito (2004) to propose an alternative analysis according to which sluiced sentences are derived from the corresponding cleft constructions in Japanese. The cleft analysis postulates that the source of the sluiced sentences in (3) and (15) has the following form:

- (17) Boku-wa [[Ken-ga atta no]-ga dare-ni **da** ka]
 I-TOP Ken-NOM met that-NOM who-DAT be Q
 soozoodekinai.
 cannot.imagine
 'I cannot imagine who it was that Ken met.'

The embedded clause here is a cleft construction (see Hoji (1989) for general discussions about the cleft construction in Japanese): it has a clausal subject expressing the presupposition, which is followed by the focused *wh*-phrase, which in turn is followed by the copula. It is independently assumed that Japanese allows ellipsis of arguments such as subjects and objects (Oku (1998), Saito (2007), Takahashi (2008), and so on). If the embedded clausal subject is elided in (17), Saito (2004) argues, it yields (15). Also, for some unclear reason, the copula can optionally be omitted in embedded clauses in Japanese. Thus, besides (17), we may have the following form:

- (18) Boku-wa [[Ken-ga atta no]-ga dare-ni — ka] soozoodekinai.
 I-TOP Ken-NOM met that-NOM who-DAT Q cannot.imagine

Elision of the embedded subject in (18) gives rise to the “sluiced” sentence in (3). Since the cleft analysis can accommodate the optional appearance of the copula in Japanese sluicing and dispense with the assumption that Japanese, a *wh*-in-situ language, has overt *wh*-movement as well as TP-deletion, it has gained popularity among experts on the topic.

Given that the cleft analysis has become standard, a question arises as to how it accounts for multiple sluicing. In fact, Kuwabara (1996) argues that it can accommodate the occurrence of multiple remnants fairly easily. He observes that the Japanese cleft construction allows multiple foci, as shown below:

- (19) a. Boku-wa [[*kaikosareta no*]-wa dare-ga itu donna riyuu-de
 I-TOP was.fired that-TOP who-NOM when what reason-for
 (da) ka] soozoodekinai.
 be Q cannot.imagine

‘Lit. I cannot imagine who when for what reason it was that was fired.’

- b. Boku-wa [[*kakusita no*]-wa dare-ga nani-o doko-ni donna
 I-TOP hid that-TOP who-NOM what-ACC where-at what
 huu-ni (da) ka] soozoodekinai.
 manner-in be Q cannot.imagine

‘Lit. I cannot imagine who what where in what way it was that hid.’

These examples should be compared with (9) and (10). If the embedded clausal subjects (the italicized parts) are elided and the copula is optionally omitted, (19a–b) result in (9) and (10), respectively.

In fact, Takano (2002) argues that oblique movement is responsible for multiple foci. For the purpose of illustration, let us assume Hiraiwa and Ishihara’s (2002) analysis of the cleft construction in Japanese in terms of remnant movement.³ For example, the cleft sentence in (20) is derived as in (21).

- (20) [Ken-ga atta no]-wa Yumi-ni da.
 Ken-NOM met that-TOP Yumi-DAT be

‘It was Yumi that Ken met.’

³ Actually, Takano (2002) adopts a slightly different analysis of the cleft construction, but the choice between the analysis in the text and Takano’s does not affect our main concern here. Also, though Hiraiwa and Ishihara (2002) assume that the landing site of the presuppositional CP is the specifier position of Topic Phrase, we assume mainly for expository purposes that it is the specifier position of TP (see (21c)).

- (21) a. [CP [TP Ken-ga Yumi-ni atta] no] da
- b. [FocP **Yumi-ni**_I [CP t₁' [TP Ken-ga t₁ atta] no] da]
- ↑ ↑
- c. [TP [CP t₁' [TP **Ken-ga t₁ atta] no]-wa [FocP Yumi-ni_I t_{CP} da]]]**
- ↑

Underlyingly, the focused phrase *Yumi-ni* ‘Yumi-DAT’ occurs in the object position of the associated verb as in (21a), where the CP headed by *no* ‘that’ is the complement of the copula *da*, which is taken to be a focus head. In the next step depicted in (21b), the focused element undergoes movement to the specifier position of Focus Phrase (or just the Spec-FocP) via the Spec-CP. At the final stage in (21c), the CP is moved to the Spec-TP. Examples with multiple foci are then derived in the following fashion (X and Y are supposed to be focused elements):

- (22) a. [CP [TP ... X ... Y ...] no] da
- b. [CP [TP ... [X **Y X**] ... t_Y ...] no] da
- ↑
- c. [FocP [X **Y X**] [CP t_X' [TP ... t_X ... t_Y ...] no] da]
- ↑ ↑
- d. [TP [CP t_X' [TP ... t_X ... t_Y ...] **no**]-wa [FocP [X **Y X**] t_{CP} da]]]
- ↑

In the underlying representation in (22a), two focused elements, X and Y, occur in the CP headed by *no*. In the second step in (22b), the lower focused phrase Y adjoins to the higher phrase X by oblique movement, forming a complex focused phrase. In the third step in (22c), the complex undergoes movement to the Spec-FocP successive-cyclically. And finally in (22d), the remnant CP moves to the Spec-TP. Suppose that X and Y are *wh*-phrases and that the CP is elided in (22d), and we have a multiply sluiced clause.

To recapitulate the point above, whether Japanese sluicing is to be analyzed in terms of *wh*-movement plus TP-deletion or in terms of the cleft construction, the possibility of multiple sluicing depends on the availability of oblique movement, which is taken to be an instance of scrambling by Takahashi (1994). Bearing this in mind, let us turn our attention to Chinese. Chiu (2007) observes that it allows multiple sluicing, though unfortunately he only considers examples with two remnants. Although we suppose that he intends to mean that Chinese allows sluicing with two or more *wh*-phrases, we take on the task of examining whether it actually allows more than two remnants. The following are relevant examples:

- (23) a. Mouren da-le Lisi,
 someone hit-ASP Lisi
 ‘Someone hit Lisi,’

b. dan wo bu zhidao shi shei shenmeshihou zainali.
but I not know FOC who when where

‘*Lit.* but I don’t know who when where.’

c. dan wo bu zhidao shi shei shenmeshihou zainali yong shenme
but I not know FOC who when where in what
fangshi.
way

‘*Lit.* but I don’t know who when where in what way.’

(24) a. Zhangsan mai-le moge-dongxi,
Zhangsan buy-ASP something

‘Zhangsan bought something.’

b. dan wo bu zhidao shi shenme zainali yinwei shenme yuanyin.
but I not know FOC what where for what reason

‘*Lit.* but I don’t know what where for what reason.’

c. dan wo bu zhidao shi shenme shenmeshihou zainali yinwei
but I not know FOC what when where for
shenme yuanyin.
what reason

‘*Lit.* but I don’t know what when where for what reason.’

The sentence in (23a) serves as the antecedent for (23b–c). While (23b) has three *wh*-phrases as remnants, (24c) has four. Both are quite acceptable. In a similar fashion, anteceded by (24a), (24b–c) contain sluiced embedded clauses with three and four remnants, respectively, and both are acceptable. These indicate that multiple sluicing with more than two remnants is indeed possible in Chinese, just as in Japanese. What implications does it have for the general theory of multiple sluicing?

Considering data in Japanese, Takahashi (1994) argues that the availability of scrambling should be responsible for the possibility of multiple sluicing. The observation above about Chinese plainly indicates that Takahashi’s (1994) hypothesis does not hold for the language, because it is not a free word order language and hence lacks scrambling. The absence of scrambling in Chinese can be shown by a cursory look at the following data:

(25) a. Zhangsan song Lisi yi-ben shu.
Zhangsan send Lisi one-CL book

‘Zhangsan sent Lisi a book.’

- b. *Zhangsan song yi-ben shu Lisi.
Zhangsan send one-CL book Lisi
- c. *Zhangsan Lisi yi-ben shu song.
Zhangsan Lisi one-CL book send
- d. *Lisi yi-ben shu Zhangsan song.
Lisi one-CL book Zhangsan send

The example in (25a) is a double object construction. We cannot permute the order of the two objects ((25b)), nor can we place the two objects between the subject and the verb ((25c)) or in front of the subject ((25d)).

How can we proceed with the fact that multiple sluicing is available both in Japanese and in Chinese? One possibility is to stick to the idea that oblique movement is responsible for the formation of a cluster of *wh*-phrase remnants in both languages while giving up Takahashi's (1994) assumption that it is an instance of scrambling. Attributing it to Kim (1998), Takano (2002) considers the hypothesis that oblique movement is focus-related: simply put, oblique movement involves movement of one focused phrase to another (probably by adjunction). Given that focus-related movement is available in both languages, it allows both of them to have oblique movement.⁴ A potential problem with this approach is that we may lose explanation for the absence of oblique movement in English (if it were present, English would allow multiple sluicing). Obviously there are phenomena involving focus in English (for instance, the cleft construction). If oblique movement were focus-related, we would expect it to be available in English as well, yielding multiple sluicing.

Another possibility to pursue is to treat multiple sluicing in Chinese and Japanese

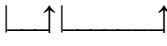
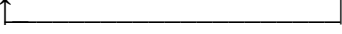
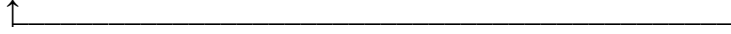
⁴ As noted above in the text, Japanese has the cleft construction, which is clearly focus-related and exhibits properties of movement (Hoji (1989)). Chinese also possesses the cleft construction, as exemplified below:

- (i) a. Zhangsan da-le Lisi.
Zhangsan hit-ASP Lisi
'Zhangsan hit Lisi.'
- b. Shi Zhangsan da-le Lisi.
FOC Zhangsan hit-ASP Lisi
'It was Zhangsan that hit Lisi.'
- c. [?]Shi Lisi Zhangsan da-le.
FOC Lisi Zhangsan hit-ASP
'It was Lisi that Zhangsan hit.'

The cleft sentences in (ib–c) are constructed on the basis of the simple sentence in (ia): the subject and the object are focused in (ib–c), respectively, as indicated by the attachment of the focus marker *shi*.

differently: for example, to maintain the analysis of Japanese multiple sluicing in terms of oblique movement as an instance of scrambling while providing a different analysis for the Chinese counterpart. Though this may be workable, it could not offer a unified explanation for the two cases of multiple sluicing, which do exhibit some similarities, such as the clausemate effect noted by Chiu (2007) and Takahashi (1994).

Kuwabara (1996) provides an alternative analysis for multiple sluicing in Japanese that does not involve oblique movement (see also Koizumi (2000)). Head movement and remnant movement are crucial ingredients of his analysis. Let us illustrate the gist of his analysis with the following schematic derivation of a multiply sluiced clause with a subject, an adjunct, and an object remnant:

- (26) a. [CP [TP WH_{SUB} [VP WH_{ADJ} WH_{OB} V] T] no] da
- b. [CP [TP WH_{SUB} [VP WH_{ADJ} WH_{OB} t_V] t_T] [C [T V T] no]] da

- c. [FocP [TP WH_{SUB} [VP WH_{ADJ} WH_{OB} t_V] t_T] [CP t_{TP} [C [T V T] no]] da]

- d. [TP [CP t_{TP} [C [T V T] no]]-wa [FocP [TP WH_{SUB} [VP WH_{ADJ} WH_{OB} t_V] t_T] t_{CP} da]]

- e. [CP [TP ~~CP t_{TP} [C [T V T] no]]-wa [FocP [TP WH_{SUB} [VP WH_{ADJ} WH_{OB} t_V] t_T] t_{CP} da]] ka]~~

Kuwabara (1996) assumes that Japanese sluicing is derived from the cleft construction, and thus we illustrate his analysis with Hiraiwa and Ishihara's (2002) theory (see (20) and (21) above). In the underlying representation in (26a), three *wh*-phrases appear in the CP headed by *no* 'that,' which is selected by *da* 'be.' In the next step in (26b), the verb inside the CP undergoes head movement to C via T. In (26c), focus movement applies to the remnant TP, locating it in the SPEC-FocP. Note that the affected TP contains the three *wh*-phrases, each of which does not undergo movement by itself: they are dislocated as a result of movement of the TP containing them. The subsequent step in (26d) involves remnant movement of the CP headed by *no* to the Spec-TP. In (26e), the TP is merged with the interrogative complementizer; if ellipsis applies to the presuppositional CP, as indicated by the strikethrough, the representation of multiple sluicing is obtained.

Since this analysis does not assume oblique movement, it should in principle be applicable to Chinese. A potential obstacle may be that in order to deal with a cluster of remnants including a subject *wh*-phrase, which is arguably in the Spec-TP, TP must be subject to remnant movement as shown in (26c), which necessitates verb movement to C as indicated in (26b). This is unlikely, however, since verbs usually do not occur above subjects in Chinese. Consider the following examples:

- (27) a. Zhangsan da-le Lisi.
 Zhangsan hit-ASP Lisi
 ‘Zhangsan hit Lisi.’
- b. *Da-le Zhangsan Lisi.
 hit-ASP Zhangsan Lisi

Verbs usually appear in the position following subjects, as in (27a). If V-to-C movement were available, cases like (27b) would be obtained. Since the configuration depicted in (27b) is generally impossible, it is unlikely that Chinese allows verb movement to C. Therefore, it is difficult to apply Kuwabara’s (1996) idea to multiple sluicing in Chinese (see also Takano (2002) for arguments against Kuwabara’s (1996) analysis).

These considerations show that it is not an easy task to account for multiple sluicing in Chinese and Japanese in a uniform fashion. Although we have to leave it to future research to propose our own analysis, we end this section by pointing out that the so-called pseudo-cleft construction in Chinese exhibits patterns similar to, and hence can be considered as a viable source of, multiple sluicing in the language (see also Chiu, Fujii, and Sugawa (2008) and the references therein for related discussions). First, the pseudo-cleft construction in Chinese is illustrated below, where RM stands for the relativization marker:

- (28) a. Zhangsan da-le Lisi.
 Zhangsan hit-ASP Lisi
 ‘Zhangsan hit Lisi.’
- b. [[Zhangsan da-le] de] shi Lisi.
 Zhangsan hit-ASP RM be Lisi
 ‘*Lit.* That Zhangsan hit was Lisi.’
- c. [[Da-le Lisi] de] shi Zhangsan.
 hit-ASP Lisi RM be Zhangsan
 ‘*Lit.* That hit Lisi was Zhangsan.’

Building on the simple sentence in (28a), we may form pseudo-cleft sentences as in (28b–c), where the subjects are free relative clauses followed by the copula and the pivots (or foci). Note that if the relative clause subjects are elided in (28b–c), sluicing-like structures are obtained. The pseudo-cleft construction is dismissed, however, as a general source of sluiced clauses in Chinese in the literature because it is difficult to derive sluiced clauses with non-NP remnants from their pseudo-cleft counterparts. Categories other than NP may appear as remnants in sluicing, but crucially they cannot be pivots in pseudo-clefts (see the references above).

- (29) a. Zhangsan da-le Lisi, dan wo bu zhidao shi zainali.
 Zhangsan hit-ASP Lisi but I not know FOC where
 ‘Zhangsan hit Lisi, but I don’t know where.’
- b. *Zhangsan da-le Lisi de shi {zai Xiantai. / zainali?}
 Zhangsan hit-ASP Lisi RM be in Sendai where
 ‘*Lit.* That Zhangsan hit Lisi was in Sendai./where?’

What is noteworthy, however, is that non-NP pivots are in fact permissible if they are preceded by NP pivots, as shown below:

- (30) a. Da-le Lisi de shi Zhangsan zai Xiantai.
 hit-ASP Lisi RM be Zhangsan in Sendai
 ‘*Lit.* That hit Lisi was Zhangsan in Sendai.’
- b. Da-le Lisi de shi shei shenmeshihou zainali yinwei shenme
 hit-ASP Lisi RM be who when where for what
 yuanyin?
 reason
 ‘*Lit.* That hit Lisi was who when where for what reason?’

In particular, (30b) contains four *wh*-phrases as pivots. Further, Chiu (2007) notes that multiple sluicing with two NP remnants is impossible in Chinese, as shown in (31a). Likewise, pseudo-clefts with two NP pivots are degraded, as in (31b–c).

- (31) a. *Mouren mai-le magedongxi, dan wo bu zhidao shi shei
 someone buy-ASP something but I not know FOC who
 shenme.
 what
 ‘*Lit.* Someone bought something, but I don’t know who what.’
- b. *Mai-le de shi shei shenme?
 buy-ASP RM be who what
 ‘*Lit.* That bought was who what?’
- c. *Da-le de shi Zhangsan Lisi.
 hit-ASP RM be Zhangsan Lisi
 ‘*Lit.* That hit was Zhangsan Lisi.’

As far as multiple sluicing in Chinese is concerned, therefore, the pseudo-cleft construction seems to be a strong candidate for the source.

3. Heterogeneous Remnants

The topic we will consider in this section pertains to multiple sluicing with different kinds of remnants in Chinese and Japanese. We will make some novel observations, pointing out implications they have on the analyses of sluicing in those languages.

Let us start with some preliminary observations. First of all, a number of authors including Chiu, Fujii, and Sugawa (2008), Kuwabara (1996), and so on observe that non-*wh*-phrases can serve as remnants in Japanese sluicing. The following is a typical example:

- (32) a. Ken-wa [CP Gaga-ga Kyoto-ni kuru to] itta.
 Ken-TOP Gaga-NOM Kyoto-to come that said
 ‘Ken said that Gaga will come to Kyoto.’
- b. Takuya-wa [CP Sendai-ni to] itta.
 Takuya-TOP Sendai-to that said
 ‘*Lit.* Takuya said that to Sendai.’

Anteceded by (32a), (32b) contains a truncated embedded clause, which consists of the non-*wh*-remnant *Sendai-ni* ‘to Sendai’ and the complementizer *to* ‘that.’ Though we do not go into details, the possibility of cases like this in Japanese vis-à-vis their absence in English leads the authors mentioned above to argue that Japanese sluicing should be treated differently from its English counterpart.

Chiu, Fujii, and Sugawa (2008) point out a similar phenomenon in Chinese. The example below is cited from the article:

- (33) a. Zhang laoshi renwei Lisi zai tushuguan du yuyanxue,
 Zhang teacher thinks Lisi at library study linguistics
 ‘Prof. Zhang thinks that Lisi is studying linguistics at the library,’
- b. dan Lin laoshi renwei shi zai kafeiting
 but Lin teacher think FOC at coffee.shop
 ‘*Lit.* but Prof. Lin thinks that at the coffee shop.’

The sentence in (33a) serves as the antecedent for (33b), where the embedded clause only contains the non-*wh*-phrase PP accompanied by the focus marker.

Further, Kuwabara (1996) observes that Japanese allows multiple sluicing with a combination of a *wh*-phrase remnant and a non-*wh*-phrase remnant. Consider the following example:

- (34) a. Ken-wa [dono otokonoko-ga kyoositu-de benkyoosita ka] sitteiru.
 Ken-TOP which boy-NOM classroom-at studied Q know
 ‘Ken knows which boy studied at the classroom.’
- b. Yumi-wa [dono onnanoko-ga tosyokan-de ka] sitteiru.
 Yumi-TOP which girl-NOM library-at Q know
 ‘*Lit.* Yumi knows which girl at the library.’

Taking (34) as its antecedent, (34b) means that Yumi knows which girl studied at the library. Notice that the embedded clause in (34b) is shrunk, with the *wh*-phrase *dono onnanoko-ga* ‘which girl-NOM’ and the non-*wh* PP *tosyokan-de* ‘at the library’ left as remnants. This fact may not be so surprising given that Japanese permits multiple sluicing and allows not only *wh*-phrases but also non-*wh*-phrases as remnants of single sluicing.

One may then expect that Chinese should allow multiple sluicing with heterogeneous remnants too, because just like Japanese, it permits single sluicing with either *wh*-phrase or non-*wh*-phrase remnants and allows multiple sluicing. This is not borne out, however, as the following examples are unacceptable:

- (35) a. Zhangsan xiang zhidao [nage nanhai zai Shanghai kanjian AKB48].
 Zhangsan want know which boy in Shanghai see AKB48
 ‘Zhangsan wants to know which boy saw AKB48 in Shanghai.’
- b. *Lisi xiang zhidao [shi nage nvhai zai Xiantai].
 Lisi want know FOC which girl in Sendai
 ‘*Lit.* Lisi wants to know which girl in Sendai.’
- (36) a. Zhangsan zhidao [nage nanhai song yiben shu gei Xiaoli].
 Zhangsan know which boy send one book to Xiaoli
 ‘Zhangsan knows which boy sent a book to Xiaoli.’
- b. *Lisi zhidao [shi nage nvhai gei Xiaohong].
 Lisi know FOC which girl to Xiaohong
 ‘*Lit.* Lisi knows which girl to Xiaohong.’

Anteceded by (35a) and (36a), (35b) and (36b), respectively, have truncated embedded clauses with a combination of a *wh*-phrase remnant and a non-*wh* remnant. (35b) is intended to mean that Lisi wants to know which girl saw AKB48 in Sendai; (36b) should mean that Lisi knows which girl sent a book to Xiaohong. As indicated, both of them are impossible. This is one respect in which Chinese and Japanese behave differently.

We point out that here, too, the pseudo-cleft construction is a viable source for multiply

sluiced clauses in Chinese, because the pseudo-cleft counterparts of (35b) and (36b) exhibit the same pattern.⁵

- (37) a. *[Kanjian AKB48 de] shi nage nvhai zai Xiantai?
 see AKB48 RM be which girl in Sendai

‘*Lit.* That saw AKB48 was which girl in Sendai?’

- b. *[Song yiben shu] shi nage nvhai gei Xiaohong?
 send one book be which girl to Xiaohong

‘*Lit.* That sent a book was which girl to Xiaohong?’

These pseudo-cleft sentences contain multiple pivots: in each case, the first pivot is a *wh*-phrase and the second is a non-*wh*-phrase. The examples are fairly degraded, in contrast with (30a–b), which have homogeneous pivots. For those who assume that multiple sluicing is derived from the pseudo-cleft construction in Chinese, the fact in (35) and (36) is relatively easy to deal with, because their alleged sources are impossible. Of course, though, providing an ultimate answer to the question why cases like (37a–b) are disallowed awaits further careful investigation.

Finally, we note that the alleged source of (34b) under the cleft analysis of Japanese sluicing does not sound very good.⁶ The cleft counterpart of (34b) is given below with our judgment:

- (38) ?*[Benkyoosita no]-wa dono onnanoko-ga tosyokan-de desu ka?
 studies that-TOP which girl-NOM library-at be Q

‘*Lit.* Which girl at the library was it that studied?’

If this observation is correct, it poses a problem to the advocates of the cleft analysis: why is (34b), a case of multiple sluicing with heterogeneous remnants, possible although its purported source, a cleft sentence with heterogeneous pivots, is impossible? Although this, too, remains to be solved, it surely gives us a new perspective on the issue concerning the proper treatment of Japanese sluicing.

⁵ As noted in section 2, the pseudo-cleft construction tolerates multiple pivots if they are of the same kind. Thus, (37a) becomes acceptable if the second pivot is replaced with a *wh*-phrase as below:

- (i) [Kanjian AKB48 de] shi nage nvhai zainali?
 see AKB48 RM be which girl where

‘*Lit.* That saw AKB48 was which girl where?’

⁶ Attributing it to one of the reviewers of his article, Takano (2002) observes that cases similar to (38) are not very bad. We disagree with him (or that reviewer) about the status of the relevant examples, which sound fairly degraded to us. The point here is that there are speakers that accept sluicing with heterogeneous remnants but do not allow cleft sentences with heterogeneous pivots.

4. Conclusion

To summarize, we have pointed out two major facts about multiple sluicing in Chinese, considering their implications on comparative research on sluicing in Chinese and Japanese. One has to do with the observation that Chinese sluicing allows more than two remnants just like its Japanese counterpart. While the fact itself demands explanation, it also helps narrow down the competing analyses proposed for Japanese multiple sluicing: it at least suggests that any analysis implicating scrambling to deal with multiple remnants should be subjected to reconsideration. The other major point pertains to the difference between the two languages in terms of multiple sluicing with heterogeneous remnants: Whereas it is possible in Japanese, it is not in Chinese. Considering that they are similar in a number of other respects related to sluicing, the existence of such a difference is intriguing in itself. At the same time, however, it has important consequences on how sluicing in those languages should be analyzed: that multiple sluicing with heterogeneous remnants patterns with its pseudo-cleft counterpart in Chinese strongly suggests the possibility that the latter acts as the source of the former. As for sluicing with heterogeneous remnants in Japanese, on the other hand, its alleged source according to the cleft analysis turns out to be impermissible, indicating that it derives from some other source. Although we have had to leave a number of important questions unresolved, we believe that our observations here will fuel further comparative research on the two languages in terms of sluicing, a much studied but still mysterious phenomenon.

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