

Sluicing and Focus Movement in *Wh*-in-situ Languages

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1. Introduction

Sluicing, the construction of a *wh*-phrase followed by an empty elliptical part, has been an intricate issue discussed since Ross (1969). A typical example is provided in (1).

- (1) a. John went out with somebody – guess who.
b. John went out with somebody – guess who_i; he went out with t_i.

For *wh*-moving languages like English, the elliptical part is an IP, and the *wh*-phrase is immune from ellipsis since it *wh*-moves given PF deletion account (cf. Lasnik 1999, Merchant 2001, to name just a few). However, a proper analysis of sluicing(-like) structure is still under hot debate for *wh*-in-situ languages like Mandarin Chinese (MC) because the *wh*-phrases in these languages generally do not undergo overt *wh*-movement; thus the configuration that feeds IP deletion is apparently underivable. Based on MC data, the goal of this paper is to argue that overt movement of *wh*-phrases always takes place prior to IP ellipsis in sluicing, either to satisfy [+*wh*] feature in *wh*-moving languages like English or to meet [+focus] feature requirement in *wh*-in-situ languages like MC. The paper starts with a description of MC sluicing data and, subsequently, our analysis is provided and compared with other approaches now on the market. Section 3 gives detailed arguments for favoring overt movement and deletion operation as in our proposal. Section 4 discusses the occurrence of *shi* ‘be’ in MC with respect to argument-adjunct asymmetry; Section 5 concludes the paper.

2. MC Data and Analysis

MC sluicing sentences exhibit great similarities with English ones, except the striking behavior of *shi* ‘be’ with respect to *wh*-arguments and *wh*-adjuncts, as shown below (Wang 2002).

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– *shei* ‘who’/*sheme* ‘what’ – argument¹

(2) Lisi yujian yige ren, keshi wo bu zhidao *(shi) shei
 Lisi met a person but I not know be who
 ‘Lisi met someone, but I don’t know who.’

(3) Lisi jiandao yige dongxi, keshi wo bu zhidao *(shi) sheme
 Lisi picked a thing but I not know be what
 ‘Lisi picked up something, but I don’t know what.’

– *zainali* ‘where’ / *shemeshihou* ‘when’ / *weisheme* ‘why’ – adjunct

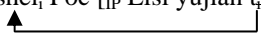
(4) Lisi maile yidong fangzi, keshi wo bu zhidao (shi) zainali.
 Lisi bought a house but I not know be where
 ‘Lisi bought a house, but I don’t know where.’

(5) Lisi qu meiguo le, keshi wo bu zhidao (shi) shemeshihou
 Lisi go U.S. Perf. but I not know be when
 ‘Lisi went to the U.S., but I don’t know when.’

(6) Lisi jueyingyao cizhi, keshi wo bu zhidao (shi) weisheme
 Lisi decided-to resign but I not know be why
 ‘Lisi decided to resign, but I don’t know why.’

The pattern here conforms to the generalization of the argument-adjunct asymmetry when *wh*-phrases in MC move overtly (cf. Huang 1982), which implies that the underlying mechanism may involve overt movement of the *wh*-phrases. We propose that, instead of *wh*-movement, sluicing in MC undergoes overt focus movement to SpecFocP (cf. Rizzi 1997) prior to the deletion of IP, as below.

(7) Lisi yujian yige ren, keshi wo bu zhidao *(shi) shei_i [~~Lisi yujian t_i~~]
 Lisi met a person but I not know be who Lisi met
 ‘Lisi met someone, but I don’t know who.’

(8) ..., keshi wo bu zhidao [_{CP} shi [_{FocP} shei_i Foc [_{IP} ~~Lisi yujian t_i~~]]


This analysis immediately raises several questions and consequences. To begin with, does overt movement of the *wh*-phrase (i.e. focus movement) really take place in MC? For a *wh*-in-situ language like MC *wh*-phrases should preferably stay in-situ; thus, if our analysis is correct, there must be some force that triggers the overt movement, provided movement is always

¹One possible exception is D-linked *wh*-arguments (like *nageren* ‘which person’) in which *shi* can be marginally absent. At this point, we think it has to do with its specificity property, but for space limit, we do not pursue further here.

triggered by morphological or semantic requirement (Chomsky 1995, Fox 2000). Therefore, the second question is about the underlying motivation for such movement in sluicing. Thirdly, does MC have identical properties with genuine sluicing as in English? That is, do the two languages pattern the same with respect to certain characteristics of ellipsis in general? Lastly, why is *shi* necessary only for *wh*-arguments and at what stage is *shi* supported? In the following sections, we will take on these questions in turn and justify our analysis. However, before that, we would like to discuss other sluicing approaches on the market, especially those that deal with sluicing in *wh*-in-situ languages.

Japanese is one of the most well-studied *wh*-in-situ languages with sluicing. Various works argue that sluicing in Japanese is reduced from the (pseudo-)cleft construction (Kizu 1997, Fukaya 2003). Although some of them have tried to extend this analysis to MC, the adequacy of explanation has not yet been achieved. In fact, to maintain their analysis, one must assume that *shi* is obligatory even in cases of *wh*-adjuncts because both of arguments and adjuncts must have *shi* in (pseudo-)clefts, as demonstrated in (9) and (10).

- (9) Lisi yujian yige ren, keshi wo bu zhidao [_{IP} ~~Lisi yujian de~~ shi shei].
 Lisi meet a man but I not know Lisi meet DE be who
 ‘Lisi met someone but I don’t know who [the one Lisi met is].’
- (10) Lisi maile dong fangzi, keshi wo bu zhidao [_{IP} ~~Lisi shi zainali~~
 Lisi bought a house but I not know Lisi be where
~~maile dong fangzi de~~].
 bought a house DE
 ‘Lisi bought a house but I don’t know [it is] where [John bought
 a house].’

Note that it is impossible to have a pseudo-cleft sentence with an adjunct in MC and the sentence in (10) is in fact a cleft sentence. Regardless of either pseudo-clefts or clefts, *shi* is necessary in both cases, which does not pattern the same with sluicing sentences where *shi* is optional in the case of *wh*-adjuncts, not to mention that the reduction or deletion mechanism faces certain fatal problem with respect to the constraint on syntactic operations. That is, the motivation to delete part of the pseudo-clefts or clefts is unclear and unconstrained.

Recently, the analyses of sluicing in MC have utilized the notion of null *pro* and argued that this is the actual mechanism that fills the gap. This analysis is illustrated in (11) (Adams 2004).

- (11) (John bought [something]_i), dan wo bu zhidao [*pro*_i shi [sheme]]
but I not know copula what
'..., but I don't know what (*that* was).'

Although this analysis captures the characteristic that *wh*-phrases in MC do not move at all on the surface, it still fails to account for the diversity of *shi* varying with arguments and adjuncts. Possibly for this reason, Wei (2004) argues that, in addition to the null *pro* assumption, the diversity of *shi* is related to whether the *wh*-remnant can be predicative or not. For non-predicative ones (mostly *wh*-arguments), *shi* is necessary and, together with the *wh*-remnant, predicates over the null *pro*. For predicative ones (e.g. *wh*-adjuncts and D-linked *wh*-arguments), *shi* is not necessary since the predicative *wh*-phrase itself can be a predicate of the *null pro*. In the first place, this approach sounds attractive since it tries to account for the diversity of *shi* with reference to predication. However, besides the ad-hoc assumptions, the analyses based on null *pro* face some empirical as well as conceptual difficulties as we will show in the next section.

In addition to the above approaches, Paul and Potsdam's (2004) work on sluicing in Malagasy, a *wh*-in-situ Austronesian language, argues that the mechanism that derives sluicing is predicate fronting, followed by subsequent deletion of the IP. That is, the syntactic operation that prevents the *wh*-remnant from being elided is the fronting of the predicate including the *wh*-phrase. This seems to be applicable to MC because the remnant is a copula *shi* (or equational verb) plus the *wh*-phrase, which as a whole is like a VP. However, maintaining the predicate-fronting analysis and assuming [*shi* + *wh*-phrase] as a fronted VP, sluicing in MC can only be derived from pseudo-cleft construction. Inevitably, this approach will face exactly the same problems as in the pseudo-cleft analysis.

3. Overt Movement and PF Deletion in Sluicing

In this section, we show that sluicing in MC exhibits characteristics of overt movement and deletion, two main components of our analysis

3.1 Preposition Stranding

English allows preposition stranding in (*wh*-)extraction and that is why English grants either the fronting of the *wh*-phrase itself or pied-piping of the whole PP in sluicing (Merchant 2001).

(12) John went to Boston with someone, but I don't know (with) who.

On the other hand, preposition stranding is not allowed in MC. Thus, if MC sluicing does involve overt movement, one should predict that prepositions like *gen* 'with' and *dui* 'to' are obligatorily pied-piped with *wh*-phrases. The prediction is borne out as shown below. Note that the appearance of *shi* does not improve the grammaticality.

(13) Lisi gen ren qu wan, keshi wo bu zhidao (shi) *(gen) shei
Lisi with person go play but I not know be with who
'Lisi has a trip with someone, but I don't know with who.'

(14) Lisi dui ren fale piqi, danshi wo bu zhidao shi *(dui) shei
Lisi to person lost temper but I not know be to who
Lit. 'Lisi lost temper to someone, but I don't know to who.'

3.2 The Peculiar Behavior of *zenmeyang* '(Manner) How'

An English sluicing sentence with *how* is perfectly fine:

(15) John opened the locked door but I don't know how.

However, the counterpart of *how* in MC, *zenmeyang* '(manner) how' is not permitted in sluicing. This result seems to be unexpected but follows naturally from our analysis. As evidenced in (16), *zenmeyang* cannot feed focus movement in general; hence it is never found in sluicing given that overt movement is prerequisite for sluicing in MC.

(16) a. Laowu zenmeyang xiuru Lisi ?

Laowu how insult Lisi

'How did Laowu insult Lisi?'

b. * zenmeyang_i Laowu t_i xiuru Lisi ?

(17) * Laowu xiuru Lisi, keshi wo bu zhidao (shi) zenmeyang

Laowu insult Lisi but I not know be how

3.3 Island Repair

In Adams (2004) she argues that sluicing in MC is insensitive to islands; therefore, a null *pro* analysis should be preferable. However, as noted in Ross (1969), Merchant (2001), and Lasnik and Fox (2003) among others, sluicing can repair island violation and the insensitivity can be attributed to

certain special property of PF deletion. Thus, it is not surprising that sluicing in MC patterns the same supposing PF deletion has taken place.

- (18) I believe the claim that he bit someone, but they don't know who
(* I believe the claim that he bit).
- (19) laoshi zhe xueqi dangle yi-ge ren de xiaoxi xiahuaile
teacher this semester flunked a person DE news shocked
quan ban, women dou zai cai shi shei
all class we all Prog. guess be who
'The news that the teacher flunked someone this semester
shocked the whole class, and we are all guessing who.'

However, when it comes to a *wh*-adjunct being extracted out from the island in either language, the grammatical judgment becomes inconsistent from speakers to speakers. The diversity, as also noted by Wei (2004) for MC, happens in cases where the first conjunct has a syntactic island and the *wh*-adjunct is supposed to be extracted out of the island in the second conjunct before the deletion takes place. The examples are shown in the following.

- (20) ?* I heard the rumor that Jo sold her car, but I don't know when.
- (21) ?* wo tingdao Lisi maile dong fangzi de yaoyan, danshi wo bu
I heard Lisi bought a house DE rumor but I not
zhidao (shi) shemeshihou
know be when
'I heard the rumor that Lisi bought a house, but I don't know
when.'

Note that *when/shemeshihou* in both sentences refer to the time when *John/Lisi* bought a house². For this reason, Wei (2004) further divides the null *pro* to be nominal (i.e. able to co-index across island) and event (i.e. unable to co-index across island) in order to capture the diversity but this further distinction turns out to be unnecessary and unhelpful because in some cases (especially when an overt correlate of the *wh*-adjunct appears) the event *pro* can still co-index with something inside the island. However, under our movement account, the diversity can be accounted for. Since the extraction

²With *when* referring to the event denoted by the sentence inside the island in English, some speakers can still accept it but others consider the sentence as really bad. In any event, it shows contrast with island extraction of *wh*-argument, as in (18).

of an adjunct is well noted as worse than that of an argument regarding island violation, the diversity thus arises and differs among speakers.

3.4 Strict/Sloppy Readings and Binding Condition

Sluicing in MC clearly exhibits strict and sloppy ambiguity³, a typical property of ellipsis.

- (22) Laowu zhidao ta weisheme yao jiehun, Lisi ye zhidao weisheme.
Laowu know s/he why get marry Lisi also know why
'Laowu knows why he gets married, Lisi also knows why.'
a. Strict: Lisi also knows why he (= Laowu) gets married.
b. Sloppy: Lisi also knows why he (= Lisi) get married.

In this sentence, the pronoun *ta* 'he/she' can refer to either *Laowu* (strict) or *Lisi* (sloppy) and this pattern holds the same for the logophor *ziji* 'self'. Wei (2004) proposes that the pronoun or logophor in sluicing can co-index with either the subject in the first conjunct or nothing at all. The former results in the strict reading whereas the latter the sloppy one. This assumption immediately faces challenges when the pronoun or logophor is replaced with a reflexive *ta-ziji* 'him-/her-self'. The sluicing sentence with a reflexive highly favors the sloppy reading rather than the strict one.

- (23) Laowu zhidao ta-ziji weisheme yao jiehun, Lisi ye zhidao
Laowu know s/he-self why get marry Lisi also know
weisheme.
why
'Laowu knows why he gets married, Lisi also knows why.'
a. ?? Strict: Lisi also knows why he (= Laowu) gets married.
b. Sloppy: Lisi also knows why he (= Lisi) gets married.

Conceptually, it is less preferable to say that reflexives in sluicing tend to be co-indexed with nothing due to the dominance of the sloppy reading. This assumption will be in conflict with the nature of reflexives, which are

³Adams (2004) argues that there is no sloppy reading available for sluicing in MC based on sentences where a null *pro* in her analysis is replaced with the overt counterpart *na* 'that'. Then she concludes that the null *pro* analysis which retains the maximal similarity with the sentence above can account for the lack of sloppy reading for sluicing in Chinese. Nevertheless, most speakers tend to have ambiguous readings for the sluicing sentences; even Wei (2004) who sympathizes with the null *pro* analysis judges the relevant sluicing sentences to be ambiguous.

always required to be locally bound and co-indexed. In our analysis, it is the local nature of reflexives that explains why sloppy reading is highly preferable. The sentence is first spelled-out with the entire syntactic structure and the local nature of reflexives dictates that co-indexing with the most accessible subject is preferable (cf. Kennedy to appear).

3.5 Extraction from Elliptical Site

The deletion operation can be further justified when a sluicing sentence in MC involves extraction of certain constituent out of the elliptical site.

- (24) zheben shu_i Laowu zhidao ta zainali kanguo t_i, er naben shu_j
this book Laowu know he where saw and that book
Lisi ye zhidao zainali t_j.
Lisi also know where
Lit. 'This book Laowu knows where he saw, and that book Lisi
knows where (he saw) too.'

In the above, *zheben shu* 'this book' and *naben shu* 'that book' are both extracted and the second conjunct means "Lisi knows where he saw that book" rather than "Lisi knows where the book was". It is thus impossible to assume that the structure in the second conjunct before extraction is like (25) because such representation can only have the meaning "Lisi knows where the book was".

- (25) ..., er Lisi ye zhidao naben shu zainali.
..., and Lisi also know that book where
Lit. '..., and Lisi knows where the book was, too.'

In other words, the unavailability of the representation above shows that *naben shu* must launch from somewhere else. Given the interpretation, the most feasible way is to say that the non-elliptical counterpart is as in (26) where the embedded sentence in the second conjunct is first fully spelled out and *naben shu*, like *zheben shu*, in the first conjunct, is extracted from the elided IP.

- (26) zheben shu_i Laowu zhidao ta zainali kanguo t_i, er naben shu_j
this book Laowu know s/he where saw and that book
Lisi ye zhidao zainali_k [_{IP} ta t_k kanguo t_j.]
Lisi also know where s/he saw

The null *pro* form analysis will not be able to account for this fact and it is simply difficult to find where the extraction originates. To sum up, in section 3, we have validated our analysis because sluicing in MC displays the properties resulting from overt movement as well as PF deletion operation.

4. Argument-adjunct Asymmetry of *Shi* Support

4.1 Case Requirement

Having established the validity of movement plus deletion analysis, the next step is to account for the argument-adjunct asymmetry of *shi* support. To begin with, what is the motivation of *shi*-support in some cases? Consider (27)-(29).

- (27) Lisi yujian yige ren, keshi wo bu zhidao *(shi) shei
Lisi met a person but I not know be who
'Lisi met someone, but I don't know who.' (Argument)
- (28) Lisi maile yidong fangzi, keshi wo bu zhidao (shi) zainali
Lisi bought a house but I not know be where
'Lisi bought a house, but I don't know where.' (Adjunct)
- (29) Laowu gen ren qu wan, keshi wo bu zhidao (shi) gen shei
Laowu with person go play but I not know be with who
'Laowu has a trip with someone, but I don't know with who. (PP)

From (27)-(29), it is shown that the asymmetry of an accompanying element of the *wh*-remnant, either *shi* or prepositions *gen* 'with', might originate in the Case assigning problem. *Shi* is obligatorily supported when the sluice contains only a *wh*-argument like *shei* 'who'. For *wh*-adjuncts and fronted PP (P + *wh*-argument), the support of *shi* is not necessary because they either do not need to get Case (i.e. *wh*-adjunct) or can get Case elsewhere (i.e. preposition). Another argument for Case-related essence of *shi* support can be seen from the fragment answer in root clause. Compare the answers (A1)-(A4) to an English question in (30).

- (30) Q: For whom would it be good to leave?
A1: For John.
A2: John.
A3: For John to leave would be good.
A4: * John to leave would be good.

It is uncontroversial that the contrast among A1 to A4 is related to Case requirement. The subject of an infinitival clause cannot get Case from Infl *to*; the appearance of a Case assigner *for* is thus necessary. However, note that A2 is grammatical while A4 is not even if A2 does not have *for*. The generalization is that the fragment answer like *John* in a root clause does not need to be Case-marked.⁴

It is known that sluicing can surface merely as a fragment. Therefore, if it is really the Case requirement that matters, given the observation above, the prediction is that *shi* is not required for MC sluicing in a fragment form and the prediction is met.⁵

- (31) Speaker A: Lisi zuotian yujian yige ren.
 Lisi yesterday met a person
 ‘Lisi met someone yesterday.’
Speaker B: (shi) shei?
 be who
 ‘Who?’

As predicted, the fragment response in a root clause, though an argument, does not need the support of *shi*. All these facts so far favor the claim that the diversity of *shi* support is closely related to Case requirement.

4.2 *Shi* and Strict PF Requirement on Case Assignment

According to Li (1990), Case assignment in MC is strictly subject to adjacency condition. We would like to extend this idea and propose that certain Case requirement in MC is active at the level of PF. When IP deletion takes place, the Case-marked *wh*-argument cannot make reference to its trace in Case-marked position since the structure has been destroyed. The strict nature of Case requirement at PF in MC dictates that the derivation crashes unless there is some repair strategy. The first possible candidate for such kind of strategy, the matrix verb (if possible), fails because of the intervening projection CP. Thus the last resort would be *shi* support. For English, the difference is that such requirement is not active at the level of

⁴To be Case-marked is to be “visible” in some sense for interpretation. That is probably why a sentence with only a fragment (even if it is a DP) needs not to be redundantly marked as “visible”.

⁵Adams (2004) argues that the fragment cannot be *sheme* ‘what’, but it is simply because a fragment like *sheme*, but not *shei* ‘who’, tends to have perlocutionary force, such as ‘WHAT (did you say)?’ and ‘WHAT!?’ (surprised). However, such force can be reduced with the Q-marker *ne*.

PF, so the deletion operation would not result in crash of the derivation. The idea that PF requirement on Case is different among languages is independently argued in Kamiya (2004).

Another intriguing aspect on how the Case requirement works in grammar can be observed from gapping(-like) sentences. As noted in Tang (2001), MC, unlike English, does not allow genuine gapping sentences, but surprisingly the ungrammaticality can be salvaged by *shi*, demonstrated in (33) (cf. Wu 2002). Note the argument-adjunct asymmetry regarding *shi* is also observed, as shown by the contrast between (33) and (34).

(32) John likes apples and Bill ___ oranges.

(33) Laowu xihuan pingguo, Lisi *(shi) juzi.

Laowu like apple Lisi be oranges

'Laowu likes apples, (and) Lisi likes oranges.'

(34) Laowu quguo niuyue san ci, Lisi (shi) liang ci.

Laowu been-to N.Y. three times Lisi (be) two times

'Laowu has been to N.Y. for three times, Lisi two times.'

This type of sentences exhibits a close correlation with sluicing⁶ and validates our claim that the necessity of *shi* is to ameliorate Case violation invoked at the level of PF. Another question left is the optionality of *shi* in cases like *wh*-adjunct, PP-fronting and fragment answer in root clause. This fact can be captured since *shi* in these instances merely functions as a focus marker. All speakers we consulted with agree that sluicing with *shi* sound more emphatic.

4.3 PF-merger and Focus Movement as Last Resort

Under our analysis, *shi* support is inevitably a PF operation since it occurs after PF deletion takes place. An immediate conceptual challenge is that it seems to violate Inclusiveness Condition (Chomsky 1995). However, as argued in Bobaljik (2002), PF-merger is an available option and in recent phase theory, such problem can even be nullified (Chomsky 2001). Another potential argument against our analysis is that overt focus movement of *wh*-phrases in MC is not always applicable. The discrepancy can be solved under last resort consideration: since MC generally does not move the *wh*-

⁶The story becomes all the more interesting if we take dialectal difference into account. According to some Beijing-Mandarin speakers, *shi* support is not required in *wh*-argument sluicing sentences and, interestingly, for those speakers gapping sentences without *shi* is also acceptable. This correlation further supports our claim.

phrases overly, the preposing (our focus movement) must be a last resort since it is feature-driven for convergence. This fact can be seen in that focus movement is better when certain focus adverb is involved, as in (36).

- (35) *shei_i Laowu xiang yujian t_i ne?*
who Laowu want see Q
'WHO does Laowu want to see?'
- (36) *shei_i Laowu zui xiang yujian t_i ne?*
who Laowu most want see Q
'WHO does Laowu want to see most?' (more natural)

For constructions such as sluicing and ellipsis in general, they have been argued to involve focus (cf. Merchant 2001). Deletion elides a constituent that carries old information and leaves only the constituent with new information, the focus of the sentence. The immediate motivation for the focus projection is its extra place to host *shi* and further motivation for it is well articulated in Rizzi (1997).

5. Conclusion

In this paper we have argued for the existence of overt movement of the *wh*-phrase prior to the IP deletion in MC sluicing. In other words, sluicing exists in *wh*-moving languages like English as well as *wh*-in-situ ones like MC. They differ crucially in that overt movement is either to satisfy [+*wh*] feature or to meet [+focus] requirement. Numerous works have tried to account for sluicing (or sluicing-like) construction in other *wh*-in-situ languages such as Malagasy (Paul and Potsdam 2004), Hungarian (Liptak 2001 for *wh* focus movement), Japanese (Kizu 1997, among other) and Korean (Kim 1997). We believe that focus movement approach for sluicing in *wh*-in-situ languages is on the right track and should in general be applicable to *wh*-in-situ languages under close scrutiny since our analysis differs minimally from those that have been well-articulated for *wh*-moving languages. This is in fact to confirm the idea that the apparent varieties across languages should in principle be reduced to specific language-particular requirement on morphophonology (cf. Chomsky's Uniformity Principle 2000).

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