Licensors for Parasitic Gaps in Mandarin Chinese

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1. Introduction

Lin (2005) notices that in-situ *wh*-phrases are incompatible with parasitic gaps in Mandarin Chinese, and proposes that overt *wh*-movement has to take place so that parasitic gaps can get licensed. In this work, in addition to arguing that *wh*-phrases are instead base-generated in the sentence-initial position, I propose that the empty category following the matrix verb is a trace left by null operator movement.

This paper is organized as follows. Section 2 briefly summarizes Lin (2005), showing that why he thinks overt *wh*-movement plays a role in licensing parasitic gaps. In Section 3, with the help of three pieces of syntactic evidence I call into question Lin’s (2005) claim that overt *wh*-movement is required in this kind of constructions. My own analysis will be laid out in Section 4, which points out that the real licensor for parasitic gaps is not a moved *wh*-phrase, but a moved null operator. Moreover, in section 5 I will address some issues about *wh*-phrases and null operators, both of which are related to the construction discussed in this paper. Section 6 is the conclusion.


Although so far there is no consensus concerning the exact properties of a PG-sentence, some well-known properties are recognized by all. Typical examples of PG-sentences are shown below.

(1) a. Which document did John file *e* without reading *pg*? Engdahl (1983)
   b. Which boy did Mary’s talking to *pg* bother *e* most?

In each of these sentences, there are two empty positions. The empty position marked as *e* is a ‘real’ gap in the sense that it is a position from which *wh*-phrases are extracted. As for the other, it is called a parasitic gap since its existence depends on the availability of the real gap.

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Moreover, it is usually assumed that sentence-initial *wh*-phrases are not associated with parasitic gaps transformationally. The dependent relation between these two gaps is instantiated by the following sentence in which there is no corresponding gap for the parasitic gap to rely on.

(2) *Who filed which document, [without reading pg]?

In addition, as Engdahl (1983), Haegeman (1984) and others notice, there is an anti-c-command condition imposed on the relation between the real gap and the parasitic gap.

(3) a. *Which articles got filed by John without him reading pg?
   b. *Who sent a picture of pg?
   c. *Which article did you say got filed by John without him reading pg?

What the ungrammatical sentences in (3) have in common is that the parasitic gap is c-commanded directly by the trace left by *wh*-movement, while grammatical ones lack this c-commanding relation.¹

Furthermore, Nissenbaum (1999) observes that not only overt *wh*-movement but also covert ones can license PGs.

(4) a. ?Which senator did you persuade to borrow which car
   [after getting an opponent of to put a bomb in _2]?
   b. ?Which kid did you give which candy bar to
   [without first speaking with about the ingredients in _2]?

(5) a. ?Which senator did you persuade to borrow which car
   [after talking to for an hour]?
   b. ?Which kid did you give which candy bar to
   [in order to impress _1]?

The structures of these two PG-sentences are shown below. (6a) corresponds to (4) and (6b) is the structure for (5).

¹ For those who are interested in parasitic gaps, please see Culicover (2001).
Adopting the idea of tucking-in in Richards (1998), Nissenbaum (1999) proposes that if the covertly moved wh-phrase adjoins to a position higher than the adjunct clause, one more PG is allowed to appear in the adjunct clause, shown in (6a). But, if the wh-phrase adjoins to a position that does not c-command the gap in the adjunct clause, only one PG in the entire sentence is permitted, shown in (6b). In a nutshell, these facts suggest two things: first, covert wh-movement can license a PG in English only in a situation in which this wh-movement is accompanied by another movement which is overt; second, the position to which the wh-phrase adjoins covertly has an impact on how many PGs are allowed within the adjunct clause.

Let us turn to Mandarin Chinese now. Built on the contrast between (7) and (8), Lin (2005) claims that the reason why (7) is not acceptable is because parasitic gaps in Mandarin Chinese cannot appear in sentences containing in-situ wh-phrases, and thus proposes that overt wh-movement has to take place to license parasitic gaps.

(7) *Laowang [ zai huijian pg1 zhiqian] jiu kaichu-le shei1?

‘Which person is it who Laowang fired before meeting?’

(8) Shei1 Laowang [zai huijian pg1 zhiqian] jiu kaichu-le t1?

‘Which person is it who Laowang fired before meeting?’

Since Mandarin is a topic-comment language, some may think of shei ‘who’ in (8) as a
base-generated topic. Lin (2005) shows that when a wh-phrase is a topic, its surface position must be associated with a lower position transformationally since island effects are observed.

(9) a. Shenme yu, Laowang xihuan?
   what fish Laowang like
   ‘What fish does Laowang like?’

b. *Shenme yu, Laowang yu-guo [e_i xihuan e_i de] ren_j?
   what fish Laowang meet-exp like mod person
   ‘What fish is it such that Laowang met persons who like it?’

According to Lin, shenme yu ‘what fish’ in (9a) is said to move from the position following the matrix verb xihuan ‘like’, whereas this wh-movement is prohibited in (9b) since the wh-phrase is in a position inaccessible to movement.

As a result, Lin (2005) concludes that Mandarin PG-sentences are grammatical only when syntactic wh-movement takes place.

3. Puzzles

If it is the case that Mandarin Chinese has overt wh-movement, then we have to ask why it only happens in PG-sentences and whether or not this move shares any properties with wh-movement in other languages like English.

The crucial sentences that Lin (2005) uses to support his analysis are represented below.

(10) a. Shei, Laowang [zai huijian pg_i zhiqian] jiu kaichu-le t_i?
   who Laowang at meet before already fire-perf
   ‘Which person is it who Laowang fired before meeting?’

b. Shenme wenjian, Laowang [zai du-guo pg_i zhihou] jiu diudiao-le t_i?
   what document Laowang at read-exp after then throw-perf
   ‘Which document is it which Laowang threw away right after reading?’

(10a) and (10b) seems to be qualified PG-sentences since they are characterized as having some structural properties of PG-sentences, such as that a parasitic gap having to be licensed by A’-movement and it not being able to be c-commanded by a real gap.

Since Lin (2005) proposes that overt wh-movement is involved in this type of constructions, some structural properties pertaining to movement are expected. The first one that we anticipate is weak crossover effects.
As being discussed in the literature, the ungrammaticality of (11) is attributed to the fact that a \textit{wh}-operator moves across a pronominal element with which it is co-indexed, though unlike sentences involving strong crossover effects, this pronominal element does not directly c-command the trace of the moved \textit{wh}-phrase.

(11) *Who, does his, teacher like t?*

WCO effects are found in certain Japanese sentences as well. Takahashi (2006) argues that apparent PG-sentences display several properties that may equate them to real PG-sentences, such as the existence of A’-movement.\(^2\)

(12) [ Hazimete e au hito]-ga t kenasu no-wa
For-the-first-time see person-Nom criticize that-Top
\textit{dare-o} desu ka ?
who-Acc is Q
‘Who is it that people who see \textit{e} for the first time criticize \textit{t}?’

According to him, what moves in (12) is the focused \textit{dare-o} ‘who-Acc’ and there is one empty category, marked as \textit{e}, appearing inside the adverbial clause. Takahashi points out that if the empty position \textit{e} is replaced by an overt pronoun \textit{soitu} ‘him’, the sentence becomes degraded due to the rise of weak crossover effects.

(13) ?*[Hazimete soitu-ni au hito]-ga t kenasu no-wa
For-the-first-time him-Dat see person-Nom criticize that-Top
\textit{dare-o} desu ka ?
who-Acc is Q
‘?*Who is it that people who see \textit{him} for the first time criticize \textit{t}?’

If \textit{wh}-movement does take place in Mandarin PG-sentences, it is expected to observe weak crossover effects once a pronoun replaces the empty category within the adjunct clause. However, unlike what we have seen in Japanese, this prediction is not borne out since the resulting sentence is still grammatical.

\(^{2}\) This term ‘apparent PG-sentences’ in Takahashi (2006) refers to sentences that look like PG-sentences but slightly differ from them in several aspects, one of which is that unlike real PG-sentences, they do not obey island conditions.
(14) Shei Yuehan [ zai huijian ta zhiqian ] jiu kaichu-le ei?
who John at meet him before already fire-PERF

‘Which person is it who John fired before meeting?’

In (14), *ta ‘him’* occupies the position that originally is labeled as *pg*, and as we can see here, no weak crossover effects arise. One way to account for this phenomenon is to propose that overt *wh*-movement is not involved in the formation of this sentence. The unexpected absence of WCO effects in this case counts as the first piece of evidence against Lin’s analysis.

Second, in *wh*-movement sentences that we are familiar with, a pronoun cannot be placed in the position from which a *wh*-phrase moves.

(15) a. Who, did you see ti yesterday?
    b. *Who, did you see himi yesterday?

If overt *wh*-movement does take place in (8), a pronoun should not be allowed to appear in the position from which the *wh*-phrase is assumed to be extracted. However, (16) shows that this prediction fails to stand since placement of a pronoun does not degrade the sentence.

(16) Shei Yuehan [ zai huijian pg zhiqian] jiu kaichu-le ta ?
who John at meet before already fire-PERF him

‘Which person is it who John fired before meeting him?’

Third, when it comes to movement in sentences containing two non-D-linked *wh*-phrases, it is always the higher one that gets raised. Otherwise, superiority effects will be observed.

(17) Shenme-dongxi shei [ zai Mali gei ta pg zhiqian] jiu
    what-thing who at Mary give him before already
    xian mai-le ei ?
in-advance buy-PERF

‘Who bought what before Mary gave it to him?’

(17) contains two *wh*-phrases, *who* and *what*. From Lin’s point of view, the underlying structure of this sentence should be the one in which *what* is in the position following *buy*. However, this analysis is problematic since by assuming so we cannot account for why the crossing of the lower *wh*-phrase over the higher one does not result in superiority effects.
This fact suggests that there is no overt \textit{wh}-movement involved and the sentence-initial \textit{wh}-phrase is base-generated there originally.

Based on what we have discussed, it seems that the analysis that PG-sentences in Mandarin involve overt \textit{wh}-movement is not on the right track.

4. Analysis

The analysis that overt \textit{wh}-movement does not take place seems to be in conflict with the assumption that the empty category in the adjunct clause is a parasitic gap since it is usually assumed that a parasitic gap needs A’-movement as a licensor. If there is no \textit{wh}-movement, can we still call this kind of sentences a parasitic gap sentence? The answer to this question, I think, lies in the following sentence.

\begin{equation}
\text{*Shei} \quad \text{Yuehan} \quad [\text{PP zai huijian \quad pg zhiqian}] \quad \text{jiu ting-dao}
\end{equation}

who \quad John \quad at \quad meet \quad before \quad already \quad hear-arrive

\begin{equation}
[\text{NP Mali xihuan \quad e} \quad \text{de yaoyan}]
\end{equation}

Mary \quad like \quad DE \quad rumor

Intended meaning: ‘Who was the person such that John heard a rumor that Mary likes that person before John met him?’

In order to accommodate the facts that the \textit{wh}-phrase is base-generated sentence-initially and that island phenomena are observed, inspired by Chomsky (1977), I propose that a null operator plays an important role here, which originates in the object position of the main clause and whose movement is sensitive to island boundaries. Given this idea, the structure of (18) is represented as (19).

\begin{equation}
\text{*Shei \quad OP}_1 \quad \text{Yuehan} \quad [\text{PP zai huijian \quad pg zhiqian}] \quad \text{jiu ting-dao}
\end{equation}

who \quad John \quad at \quad meet \quad before \quad already \quad hear-arrive

\begin{equation}
[\text{NP Mali xihuan \quad t} \quad \text{de yaoyan}]
\end{equation}

Mary \quad like \quad DE \quad rumor

Intended meaning: ‘Who was the person such that John heard a rumor that Mary likes that person before John met him?’

Taking all of these factors into consideration, I propose that the structure of a PG-sentence should look like (20), which shows that the \textit{wh}-phrase is base-generated sentence-initially and there is a null operator that moves from the object position to the Spec of CP.
Summarizing what we have discussed, there are two differences between my analyses and Lin’s: First, \textit{wh}-phrases are base-generated in the sentence-initial position; second, the licensor of parasitic gaps is not a moved \textit{wh}-phrase, but a moved null operator.

If null operator movement can license parasitic gaps, we expect that sentences involving null operator movement should be able to contain adjunct clauses where parasitic gaps are present. This prediction is born out since Mandarin long passives are such constructions.

Huang (1999) claims that unlike what is proposed for passives in English, subjects in long passives of Mandarin Chinese do not move to the Spec of IP from the object position. Instead, he proposes that the subject is base-generated in its surface position and what follows \textit{da} ‘hit’ is a trace caused by null operator movement.

(21) a. Zhangsan bei Lisi da-le

\begin{align*}
\text{Zhangsan bei Lisi hit-PERF} \\
\text{Zhangsan was hit by Lisi.}
\end{align*}

(21b) shows that the null operator originally serves as the object of the verb \textit{hit}, and later it raises to adjoin to the embedded IP. If null operator movement can be a licensor for parasitic gaps, adding an adjunct clause containing a parasitic gap to a sentence similar to (21a) should not have a significant impact on its grammaticality. (22) shows that this prediction is born out.
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(22) Shei, [PP zai Yuehan huijian pg, zhiqian] jiu bei OPi dongshizhang
who at John meet before already BEI president
ma-le ti j?  
escold-PERF  
‘Who was scolded by the president (of the company) before John met him?’

The fact that (22) is grammatical lends support to the analysis that parasitic gaps can be licensed by null operator movement.

Following this line, we should analyze (9a) and (9b) as (23a) and (23b) respectively, which show that the reason why (9b) is ungrammatical is because of a null operator’s moving out of an island. This fact implies that regardless of whether the topics are wh-phrases or not, they should always be regarded as base-generated topics.

(23) a. Shenme yu, [CP OPi [IP Laowang xihuan ti]]?
what fish Laowang like
‘What fish does Laowang like?’

b. *Shenme yu, [CP OPi [IP Laowang yu-guo [e, xihuan e, de ] reni]]
what fish Laowang meet-EXP like mod person
“What fish is it such that Laowang met persons who like it?

5. Wh-phrases and Null Operators

If wh-phrases are not arguments of verbs, what is their function in PG-sentences? Or, put it in another way, will there be any consequences if we omit these wh-topics?

Chomsky (1986) considers parasitic gaps as traces of null operator movement. This idea is represented in (24).

(24) Who, did John fire ti [PP after [CP OPi [IP meeting ti]]]?

Furthermore, Contreras (1993) proposes that empty categories with [-a, -p] properties such as null operators should obey two conditions: (i) they must be A’-bound; (ii) they must be subjacent to their local binder. In PG-sentences like (24), both conditions are satisfied since who serves as the closest A’-binder for the null operator. In fact, Contreras (1993) uses ‘weak c-command’ to deal with the relation between the moved null operator, the wh-trace, and the wh-phrase in a PG-sentence. Please refer to his paper for the detailed analysis.
Mandarin examples as well.

(25) *[CP OP, [PP Yuehan [PP zai huijian pg zhiqian] jiu kaichu-le t]]]

John at meet before already fire-PERF

‘Which person is it who John fired before meeting?’

If what Contreras (1993) proposes is on the right track, we can account for the ungrammaticality of (25) by saying that the null operator is not A'-bound. As a result, in order to generate grammatical sentences, we need to place something like a sentential topic to bind the null operator. This is why a wh-topic has to be present in this construction.4

Lastly, the analysis proposed in this paper for parasitic gaps gains support from another work: Lasnik & Stowell (1991), in which they discuss weakest crossover constructions. One of the examples and its syntactic structure are shown below.

(26) a. Which man, did you look at t [before his, wife had spoken to e,]?
    b. Which man, did you look at t [PP NO, [PP before his, wife had spoken to e,]]?

Similar to what Chomsky (1986) argues for parasitic-gap sentences, they propose that in this type of constructions a null operator moves out of its base-generated position, crossing a pronoun that bears the same index, to adjoin to PP. In order to provide an account of why this type of sentences differs from overt wh-movement sentences in that WCO effects are not observed, Lasnik & Stowell (1991) make a distinction between operators. For the null operator that we have in (26), they assume that these null operators are not true quantifier phrases, so the traces of this kind of operators are immune to WCO effects.5 However, this immunity disappears if the operator involved is a wh-phrase.

Given the analysis that a null operator can cross a pronominal element with which it co-indexes, we can state that the reason why the crossing of an operator over a pronoun in (14), repeated as (27) below, is legitimate is because this sentence is a weakest crossover construction.

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4 Contreras’s analysis for null operators seems to be incompatible with Mandarin long passives since the sentence-initial element in this construction is a subject, which is in an A-position. The relation between null operators and their licensors is not central to the current work, so I leave it for future research.

5 For different opinions on WCO and weakest crossover effects, please refer to Hornstein (1995), Safir (1996), and Ruys (2004).
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(27) [CP Shei [CP OPi [IP Yuehan [PP zai huijian ta_i zhiqian] jiu kaichu-le t_i]]] ?
who John at meet him before already fire-PERF

‘Who did John fire without meeting?’

As for sentences in which there is no overt pronoun in adjunct clauses, they are parasitic-gap sentences.

6. Conclusion

Contra Lin’s (2005) analysis that wh-phrases reach their surface position through movement, I propose that these wh-phrases are base-generated there originally, and the licensing condition for parasitic gaps is in fact created by null operator movement. Moreover, given Lasnik & Stowell’s (1991) analysis proposed for weakest crossover constructions, these Mandarin PG-sentences can turn into weakest crossover constructions once the parasitic gap is filled with an overt pronoun, though the crucial crossing, different from the one in (26b), takes place in the matrix clause.

References


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