Long-distance dependency of reflexives in Mandarin fragment answers

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1 Introduction

While there are many works on anaphors and ellipsis in Mandarin Chinese, their interaction hasn't been closely studied. This paper explores reflexives as fragment answers in Mandarin, in particular, the long-distance binding of a local anaphor in fragments. As illustrated in (1), the local anaphor *taziji* in a fragment can refer to a remote antecedent *Zhangsan*.

(1)   a.   Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
                 Zhangsan think Lisi harm-ASP who
                 'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'
    b.   Taziji$_{(?)i/j}$.
             himself
             'Him$_i$/Himself$_j$.'

The question that arises from (1) is the following: how can a local anaphor establish a long-distance dependency in fragments? There are two possibilities: (i) *taziji* is not local, or (ii) the construction of fragments contributes to the nonlocal binding. To answer this question, first, I will argue based on novel arguments from the blocking effect on *ziji* and preposition matching that fragment answers in Mandarin are derived from deletion of full syntactic structures. Second, I will show that *taziji* discussed in this paper is local. Guided by Merchant (2001, 2004), I will show that *taziji* moves from the embedded clause to the left periphery, followed by the ellipsis of the remaining TP to create a long-distance binding in fragments. The derivation is schematized in (2). The analysis will further shed light on movement in ellipsis and the ability of ellipsis to repair some configurations.

(2)   Taziji ⟨[~~TP Zhangsan renwei t_1 Lisi hai-le t_2~~]⟩.

The goal of this paper is to (i) account for the binding of anaphors in fragments in Mandarin Chinese and (ii) deepen the understanding of the fragment structure (ellipsis) and the operations (movement) involved. The rest of the paper is organized as follows. Section 2

introduces some background on fragment answers. Section 3 offers a novel account of the blocking effect in Mandarin, adding to another evidence for a full syntactic structure in fragments. Section 4 presents an ellipsis analysis for the long-distance dependency of the fragment *taziji*. Section 5 concludes.
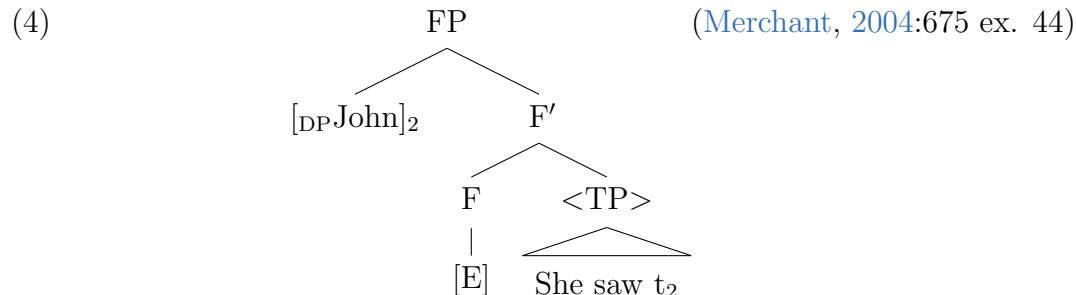
2 Background on fragments

Fragment answers appear non-sentential syntactically but have the same semantics as a fully-sentential structure (Merchant, 2004). As in (3), the non-sentential DP *John* delivers the same propositional content as the full-sentential answer.

(3)   a.   Who did she see?
      b.   John.
      c.   She saw John. (Merchant, 2004:673 ex. 37)

There are generally two approaches to fragment answers, ellipsis and direct interpretation. The paper focuses on the ellipsis account. The fragment generated in a full sentence A'-moves to a clause-periphery site, followed by the ellipsis of the rest of the sentence. Since this movement-ellipsis process is reminiscent of the operations involved in sluicing, the analysis of sluicing is drawn on to investigate fragments.

     The derivation of the fragment in (3) is schematized below.

(4)   FP   (Merchant, 2004:675 ex. 44)

$$
\begin{array}{ccc}
 & \text{FP} & \\
 \diagup & & \diagdown \\
 [_{\text{DP}}\text{John}]_2 & & \text{F}' \\
 & & \diagup \quad \diagdown \\
 & \text{F} & \quad <\text{TP}> \\
 & | & \diagup \quad \diagdown \\
 & [\text{E}] & \text{She saw } t_2 \\
\end{array}
$$

As seen above, the fragment DP *John* originates in the TP and A'-moves to the specifier position at the clause periphery of a functional projection FocusP (Rizzi, 1997). The ellipsis feature E on the head F triggers TP to be phonologically null.

2.1 Ellipsis in fragments

Merchant argues that connectivity effects suggest ellipsis in fragments. He adduces that reflexives behave similarly in fragment answers to their correlates in full-sentential answers.

     One piece of evidence comes from the Greek anaphor *o idhios*. The Greek anaphor *o*

idhios (lit. 'the same') can be an embedded subject and get bound across a clause boundary. The same binding relation is found in the fragment and non-fragment structure in (5).

(5) Greek

    a. -Pjos nomizi o   Giannis oti   tha   pari tin dhoulia?
        who   thinks the Giannis that FUT gets the job
        'Who does Giannis think will get the job? '

    b. -O idhios./-O Giannis$_1$ nomizi oti   tha   pari tin dhoulia o   idhios$_1$.
        the same/-the Giannis thinks that FUT gets the job   the same
        'Him/Giannis$_1$ thinks that he$_1$ will get the job.' (Merchant, 2004:680 ex. 63)

O idhios cannot behave as a matrix subject and is co-indexed with a DP it c-commands. The ungrammaticality of both the fragment and non-fragment answers appears in (6) as expected.

(6) Greek

    a. -Pjos nomizi oti   tha   pari tin dhoulia o   Giannis?
        who   thinks that FUT get the job   the Giannis
        'Who thinks Giannis will get the job? '

    b. -*O idhios./-*O idhios$_1$ nomizi oti   tha   pari tin dhoulia o   Giannis$_1$.
        the same/-the same   thinks that FUT gets the job   the Giannis
        (Merchant, 2004:681 ex. 64)

As illustrated above, the ellipsis account can well explain the corresponding binding relations of the anaphor *o idhios* in fragments and their non-fragment counterparts.

    One piece of evidence for connectivity in Mandarin comes from preposition-matching (Chen, p.c.). The preposition matches in both the full-sentential and fragment structures.

(7) a. Zhangsan *gen* shui qu gongyuan le?
       Zhangsan with who go park   ASP
       'Who did Zhangsan go to the park with?'

    b. *Gen* Lisi.
       with Lisi

(8) a. Zhangsan *dui* shui hen hao?
       Zhangsan to   who very nice
       'Who was Zhangsan very nice to?'

    b. *Dui* Lisi.
       to   Lisi

Some non-connectivity binding cases are also discussed. The fragment answer *him* in (9) is grammatical while its corresponding full sentential answer violates Condition C.

(9) a. Who did you tell t about Bill$_2$'s raise?
     b. Him$_2$.
     c. *I told him$_2$ about Bill$_2$'s raise. (Merchant, 2004:682 ex. 67)

The unpronounced name seems to fail to trigger Condition C violation. Merchant argues that the failure is attributed to the ellipsis effect 'vehicle change' (Fiengo and May, 1994), also found in clausal ellipses. He adds that what is elided is a pronoun rather than a name. In (10), the pronoun 'him' is elided not the proper name 'Alex'.

(10) The police arrested Alex$_3$, but he$_3$ didn't know why ~~(the police arrested him$_3$)~~.

The non-identical forms in the full-sentential and elliptical structure are licensed by the semantic theory assumed in his analysis. Since there is no name in the elided clause due to the 'vehicle change' effect, Condition C is not violated.

However, there is one non-connectivity case of *taziji* which cannot be explained by Merchant's proposal. In his analysis, reflexives that refer to subject correlates are not grammatical in fragment answers.

(11) a. Who will punish Bill if he fails?
     b. *Himself. (*Himself will punish Bill if he fails.) (Merchant, 2004:683 ex. 70)

Surprisingly, *taziji* as a fragment can refer to a subject but it still cannot be a subject in the full sentence. Except *taziji*, other anaphoric elements in Mandarin don't have this property.

In (12), *taziji* as a fragment refers to the subject correlate *Zhangsan* in the question but the anaphor *ziji* and the pronoun *ta* cannot.

(12) a. Shui gei Zhangsan$_i$ mai hua   le?
          who give Zhangsan buy flower ASP
          'Who bought Zhangsan$_i$ flowers?
     b. Taziji$_i$./Ziji$_{*i}$./Ta$_{*i}$.
          himself/self/him
          'Him$_i$.'

However, *taziji* cannot be the matrix subject which co-construes with a c-commanded DP in the full sentence (13), a violation of Condition A and C.

(13) a. Taziji$_{*i}$/Ziji$_{*i}$/Ta$_{*i/j}$ gei Zhangsan$_i$ mai hua   le.
          himself/Self/He   give Zhangsan buy flower ASP
          'Himself$_{*i}$/Self$_{*i}$/He$_{*i/j}$ bought Zhangsan$_i$ flowers.'

I will present a potential analysis to address this issue in 4.2.4.

4

2.2 Movement in fragments

Let's turn to another key part of the ellipsis analysis: movement. The main evidence is drawn from islands and the distribution of negative polarity items.

2.2.1 Islands

The in-situ wh-expressions are found sensitive to islands in Mandarin. The wh-question is grammatical when not embedded in an adjunct in (14). But in (15), the wh-phrase *shui* 'who' tries to covertly move out of the adjunct clause, the sentence is ruled out by the adjunct island constraint.

(14) Shui de-le   diyiming?
     who get-ASP the first place
     'Who wins the first place?'

(15) *Yinwei shui de-le   diyiming,   Lisi hui gaoxing?
     because who get-ASP the first place, Lisi will happy
     'Who is the person x such that Lisi will be happy because x wins the first place?'

A strategy to circumvent this situation is to use implicit salient questions (Morgan, 1973; Merchant, 2004). An example is given below. The questioned constituent *Greek* bears a rising tone, which produces an implicit question *What language does Abby speak?* with the stressed DP replaced by a proper wh-phrase.

(16) a. Does Abby speak *Greek* fluently?
     b. No, *Albanian.*
     c. No, she speaks *Albanian* fluently. (Merchant, 2004:688 ex. 84)

The answer to such a question includes the answers to the polar question and to the implicit question. Since there is no island in (16), both the fragmentary and non-elliptical answers are grammatical.

However, when the questioned element is inside an island, the fragment answer is unacceptable. The questioned DP *Ben* inside a complex NP island in (17-a) doesn't violate the constraint while it is ungrammatical as a fragment answer (17-b).

(17) a. Does Abby speak the same Balkan language that *Ben* speaks?
     b. *No. *Charlie.*
     c. No, she speaks the same Balkan language that *Charlie* speaks.
         (Merchant, 2004:688 ex. 87)

The island violation indicates that *Charlie* in the fragment tries to move out of the island.

Similar effects can be found in Mandarin. When the questioned DP is not within the island, namely *hongcha* 'black tea' in (18), both the fragmentary and full-sentential answers are allowed.

(18)   a.   Zhangsan xihuan hongcha   ma?
            Zhangsan like   black tea Q
            'Does Zhangsan like black tea?'

       b.   Bu, lücha.
            no   green tea
            'No, green tea.'

       c.   Bu, ta xihuan lücha.
            no   he like   green tea
            'No, he likes green tea.'

However, when the questioned DP *Lisi* is inside an island as in (19), it is expected that the in-situ *Lisi* is grammatical without island violation, while the fragment answer *Wangwu* is not, reminiscent of *Charlie* in (17-b).

(19)   a.   Zhangsan hui shuo *Lisi* jiang de fangyan ma?
            Zhangsan can say   Lisi speak DE dialect   Q
            'Can Zhangsan speak the dialect that Lisi speaks?'

       b.   *Buhui. Wangwu.
            no can Wangwu
            'He cannot. Wangwu.'

       c.   Buhui. Ta hui shuo Wangwu jiang de fangyan.
            no can He can say   Wangwu speak DE dialect
            'He cannot. He can speak the dialect that Wangwu speaks.'

The ungrammaticality of the fragment *Wangwu* attests to the existence of movement in forming fragment answers in Mandarin.

The adjunct island effects are also expected in the fragment answer of (20) (repeated from (15)).

(20)   a.   Yinwei *Zhangsan* de-le   diyiming,   Lisi hui gaoxing ma?
            because Zhangsan get-ASP the first place, Lisi will happy   Q
            'Will Lisi be happy because Zhangsan wins the first place?'

       b.   *Bu, Wangwu.
            no   Wangwu
            'No, Wangwu.'

       c.   Bu, yinwei Wangwu de-le   diyiming,   Lisi hui gaoxing.
            no   because Wangwu get-ASP the first place Lisi will happy
            'Lisi will be happy because Wangwu wins the first place.'

Following Wei (2016), Liu (2022) argues fragments in Mandarin are not sensitive to islands in which case the fragment answer to a wh-argument correlate inside an island is grammatical. They attribute it to the different structural positions of FocP in English and Mandarin.

(21) a. Ta zhaodao [shei zui ai de   bi] (ne)?
          he find   who most like REL pen Q
          'Who is the person x such that he found the pen that x likes most?'
      b. Lisi. (Wei, 2016:112)

Since the same island violation does appear in the fragment to implicit salient questions in (19), I suggest the lack of island effects in (21) can result from the insensitivity of wh-arguments to complex NP islands. Adopting Fiengo et al. (1989)'s analysis, I argue that the fragment to a wh-correlate moves in a stepwise manner without directly crossing the island as their wh-phrase counterpart does. As a result, no island effects occur.

As an interrogative expression and an existential quantifier, a wh-phrase can do wh-movement and quantifier raising (QR), the latter of which can 'pied-pipe' a large chunk of phrases in LF (Fiengo et al., 1989). Despite the similarity, it needs to be distinguished from the pied-piping in Q-movement, since the latter applies to wh-fronting languages and occurs at the level of syntax (Kotek, 2019).

When a quantificational NP (QNP) is inside another NP, the containing NP can be treated as a QNP, subject to QR. The apparent lack of island violation can be achieved when the containing NP (islands) first undergoes QR, followed by the A'-movement of the contained QNP (wh-phrases) to the SpecCP. An example is given.

(22) a. Ni zui xihuan [$_{NP}$ shei xie de   shu]?
          you most like   who write de book
          'For which x, x a person, you like books that x wrote?'
      b. [$_{CP}$ shei$_i$ [$_{IP}$ [$_{NP}$ t$_i$ xie de shu]$_j$ [$_{IP_1}$ ni zui xihuan t$_j$]]]?
          who write de book you most like
          (Huang et al., 2009:270)

Since the wh-phrase *shei* 'who' is a QNP, the NP in which it is contained is also a QNP and can undergo QR, adjoined to IP$_1$. With a dual role, *shei* can subsequently A'-move to the SpecCP. No apparent island violation appears.

While the stepwise movement in (22) is allowed, the extraction from within the complex NP in one full step is banned.

(23) a. Xigua$_i$,   Zhangsan hen   xihuan t$_i$.
          watermelon Zhangsan most like
          'Watermelons, Zhangsan likes a lot.'

    b.   Zhangsan zui   xihuan [Lisi xie   de shu].
           Zhangsan most like   Lisi write de book
           'Zhangsan likes the books Lisi writes.'

    c.   *Lisi$_i$, Zhangsan zui xihuan [t$_i$ xie de shu].

As shown in (23-c), there is island violation when a normal DP is extracted from the complex NP. The difference between (22-a) and (23-c) can be due to the different types of movement involved. Unlike non-quantificational *Lisi*, the QNP *shei* moves in two steps without directly crossing one whole island. The former causes the island violation while the latter doesn't.

The same process applies to fragments by the identity condition, parallelism (Fox and Lasnik, 2003; Messick and Thoms, 2016). As for (21-b), the same syntactic structure exists in the question and the answer. Therefore, the fragment answer to the wh-question undergoes the same types of movement as their wh-correlate and finally moves to the sentential edge followed by the ellipsis. However, for (20-b), with the identical structure in the answer, the fragment doesn't correspond to a QNP and has to cross the island in a full step. The fragment is ungrammatical as expected.

Thus, the different behavior regarding island effects in the examples above supports the existence of movement and also the occurrence of a full sentential structure in fragments.

2.2.2 Negative polarity items (NPI)

Another piece of evidence for movement comes from the distribution of NPIs (Wei, 2016). NPIs such as *renhe-N* 'any-N' have to be c-commanded by negation in Mandarin. The NPI in (24) is c-commanded by the negation marker *meiyou*.

(24)   Zhangsan meiyou   shanghai [renhe ren].
        Zhangsan not-have harm   any person
        'Zhangsan didn't harm anyone.'

When the NPI is fronted to the edge, the sentence is ungrammatical.

(25)   *[Renhe ren]$_i$ Zhangsan meiyou   shanghai t$_i$.
        any person   Zhangsan not-have harm
        'Zhangsan didn't harm anyone.'

If the fragment in (26-b) is base-generated as its wh-correlate in (26-a) and its non-elliptical counterpart in (26-c), it is expected to be grammatical. However, this is not the case. The ungrammaticality of (26-b) suggests that movement is engaged in forming fragments.

(26)   a.   Zhangsan meiyou   shanghai [shui]?
           Zhangsan not have harm   who

'Who didn't Zhangsan harm?'

b. *Renhe ren.
any   person
'Anyone.'

c. Zhangsan meiyou   shanghai [renhe ren].
Zhangsan not have harm   any person
'Zhangsan didn't harm anyone.'

As demonstrated above, movement plays a role in the fragments. While island violation is absent in some islands, it can be attributed to more steps of movement rather than no movement.

3   The blocking effect

There are two kinds of reflexives in Mandarin Chinese, namely *taziji* 'himself/herself' and *ziji* 'self'. While our main puzzle concerns *taziji*, the binding of *ziji* helps disclose the existence of a full sentence structure in ellipsis.

   Ziji can be bound locally and non-locally (Huang and Tang, 1991; Reuland et al., 2020). The long-distance dependency of *ziji* is subject to an intervention effect, the *Blocking Effect*. It may reveal how ellipsis interacts with binding in Mandarin fragments. The blocking effect occurs when the nonlocal binding of *ziji* is blocked by a first-/second-person pronoun (Pan, 2000). In (27), *ziji* is bound by the remote third-person binder *Zhangsan* in the presence of a third-person local antecedent *Lisi*.

(27)   Zhangsan$_i$ renwei Lisi$_j$ hai-le   ziji$_{i/j}$.
         Zhangsan think Lisi harm-ASP self
         'Zhangsan$_i$ thought Lisi$_j$ harmed him$_i$/himself$_j$.'

However, the nonlocal co-construal relation is blocked by the first-person pronoun *wo* 'I' and the second-person *ni* 'you' in (28).

(28)   Zhangsan$_i$ renwei wo$_j$/ni$_j$ hai-le   ziji$_{*i/j}$.
         Zhangsan think I/you   harm-ASP self
         'Zhangsan$_i$ thought I$_j$/you$_j$ harmed myself$_j$/yourself$_j$.'

The distant first-person pronoun is also prevented from binding *ziji* by a local second-person *ni* (Pan, 2000).

(29)   Wo$_i$ renwei ni$_j$ hai-le   ziji$_{*i/j}$.
         I   think   you harm-ASP self
         'I$_i$ thought you$_j$ harmed yourself$_j$.'

If the positions of two antecedents in (28) are reversed as in (30), there is no blocking.

(30) Wo_i/ni_i renwei $Zhangsan_j$ hai-le $ziji_{i/j}$.
        I/You   think Zhangsan harm-ASP self
        'I_i/You_i thought $Zhangsan_j$ harmed $me_i/you_i/himself_j$.'

The blocking also disappears when the remote binder and the nonlocal *ziji* both precede the first-/second-person pronoun in (31).

(31) $Zhangsan_i$ renwei $ziji_i$ hai-le wo_j/ni_j.
        Zhangsan think   self harm-ASP I/you
        '$Zhangsan_i$ thought he_i harmed me_j/you_j.'

The embedded first-/second-person pronoun doesn't cause blocking as below in which the remote binder *Zhangsan* can co-construe with *ziji*.

(32) $Zhangsan_i$ renwei $[wo_j/ni_j$ de $gege]_k$ hai-le $ziji_{i/*j/k}$.
        Zhangsan think I/you POSS brother harm-ASP self
        '$Zhangsan_i$ thought my/your $brother_k$ harmed $him_i/himself_k$.'

We can conclude that the blocking arises from the existence of a local first-/second-person antecedent which intervenes between the remote binder and *ziji*. While there are other structures exhibiting blocking, for the purpose of this paper, I will focus on the configuration with two antecedents in the subject positions.

3.1   The binding of *ziji*

I combine Baker and Ikawa (2023)'s and Charnavel (2019) 's proposals to encode the long-distance dependency of *ziji*. It follows as *Ziji* obeys Condition A and can have a local subject antecedent. One possible interpretation of (33) is that *ziji* refers to the local subject *Lisi*.

(33)   Zhangsan shuo $Lisi_j$ hai-le $ziji_j$.
        Zhangsan say   Lisi harm-ASP self
        'Zhangsan said Lisi harmed $himself_j$.'

Based on their analysis, *ziji* is an exempt anaphor on a logophoric basis (Huang and Liu, 2000) and locally bound by a silent subject of a logophoric operator. Any overt DP which can refer to this implicit subject is co-construed with *ziji* and exhibits a long-distance binding on the surface.

(34)   ... (DP_i) ... $[_{XP}$ $[_{YP}$ $[_{LogP}$ pro_{log_i} $OP_{LOG}[$ ... $ziji_i$ ... $]$ $]$ $]$ $]$
        (Charnavel, 2019:217 ex. 4a)

In (34), the XP includes the phase edge while the YP represents the spell-out domain. The logophoric projection LogP which occurs in each spell-out domain is a syntactic realization of perspective. The invisible subject pro_{log} is a logophoric pronoun, serving as a perspective holder and the logophoric center of a given spell-out domain. The head OP_{LOG} specifies its complement to represent the first-person perspective of its logophoric center. The logophoric pronoun locally binds *ziji* in the complement and gets co-indexed with any available DP, which results in a seemingly distant binding relation of *ziji*.

Following Charnavel's analysis, the embedded clause ZP in (35) is stated from the first-person perspective of the logophoric center pro_{log} via OP_{LOG} in (36). The logophoric pronoun locally binds *ziji* in its complement and subsequently is co-construed with *Zhangsan*.

(35)   Zhangsan$_i$ renwei [$_\text{ZP}$ Lisi hai-le   ziji$_i$].
       Zhangsan think   Lisi harm-ASP self
       'Zhangsan$_i$ thought Lisi$_j$ harmed him$_i$.'

(36)   Zhangsan$_i$ ... [[[$_\text{LogP}$ pro$_{\text{log}_i}$ OP_{LOG} [$_\text{ZP}$ Lisi ... *ziji*$_i$ ...]]]]

Thus, the superficial long-distance binding of *ziji* is reduced to a local binding by the logophoric pronoun which in turn gets co-referenced with the matrix subject.

3.2   Blocked by an imposter *ziji*?

There is still disagreement in the literature about whether the blocking effect should be enforced as a syntactic constraint or governed by pragmatic factors. In this section, I present a novel argument that it should be enforced in the syntax. This argument comes from looking at so-called imposters in Mandarin.

An imposter is a DP whose notional and grammatical person features differ (Collins and Postal, 2012). The first-person imposter *l'autore* in (37) is a third-person grammatically but refers to the speaker from a first-person perspective pragmatically.

(37)   L'autore   cercherà   di difendere se   stesso.
       the author try-FUT-3SG of defend   him self
       'The author will try to defend himself.' (Servidio, 2014:124 ex. 3a)

Servidio (2014) proposes that the imposter has a layered structure, a third-person shell and a non-third person core that is anteced by AUTHOR or ADDRESSEE. The AUTHOR/ADDRESSEE is stipulated to be a secondary source for the non-third person agreement.

In Mandarin, names can function as first-person imposters as in Italian. In (38), despite the lack of morphological changes, *ziji* refers to *Jiajia* also the speaker.

(38) Jiajia$_i$: Jiajia$_i$ ye bu dong   ziji$_i$.
             Jiajia also not understand self
        'Jiajia didn't understand herself as well.'

The previous research on English and Italian imposters shows only plural imposters are allowed to have non-third person agreement with reflexives. Since *ziji* cannot have a plural antecedent more details in (53) and (54), this diagnostics for imposters doesn't apply in Mandarin. However, we can still see that the singular first-person imposter *Jiajia* doesn't cause the blocking effect in the long-distance binding of *ziji*.

(39) Jiajia$_j$: Chenliuguan$_i$ shuo Jiajia$_j$ kuidai-le   ziji$_{i/j}$.
             Chenliuguan say   jiajia mistreat-ASP self
        'Chenliuguan$_i$ said Jiajia$_j$ mistreated self$_{i/j}$.'

If the embedded subject refers to the addressee, there is still no blocking.

(40) Zhangsan$_i$ xiangxin xiaobaobei$_j$ neng zhaoguhao   ziji$_{i/j}$.
     Zhangsan believe   sweetheart can   take good care of self
        'Zhangsan$_i$ believed his sweetheart$_j$ could take good care of him$_i$/himself$_j$.'

It shows that the grammatical features of the imposters play a role in the binding of *ziji* and the non-third person core doesn't trigger blocking. It further suggests the blocking effect arises from syntactic not pragmatic factors.

3.3 Blocking as the crossed-dependency

The idea of crossed dependencies goes back to Pesetsky (1982). While Tollan and Clemens (2022) apply it to explain the ergative movement restriction in Mayan, I will extend their analysis on movement restrictions to the blocking effect in Mandarin. The binding relation between the antecedent and the anaphor has been treated as a pathway connecting two syntactic positions (Kayne, 1981), which is analogous to the pathway of movement. Accordingly, they may share the properties regarding dependency formation.

In Tollan and Clemens (2022)'s proposal, the movement which crosses the path of previous movement is illicit and should be banned. In (41), the path of X$_j$ crosses that of X$_i$ and is forbidden.

(41)   The crossed dependency
        X$_j$ ... X$_i$ ... $_j$ ... $_i$ (Tollan and Clemens, 2022:469 ex. 20)

However, despite the overlapping of the two pathways in (42), the path of X$_j$ contains that

of X_i without crossing. The movement of X_j is allowed.

(42)   The nested dependency
        X_j ... X_i ... $_j$ ... $_j$ (Tollan and Clemens, 2022:469 ex. 21)

Similarly, the binding of *ziji* can be treated as a pathway from the anaphor to its antecedent $\text{pro}_{\log}$. Since the embedded clause represents the first-person perspective of the logophoric center, the whole sentence can analogously stand for a first-person perspective of relevant interlocutors in the discourse. The speaker/ addressee of the sentence is denoted by the Sp(eaker)/ Ad(dressee) operator (Speas and Tenny, 2003). The Sp/Ad operator has the feature $[+1]/[+2]$ and respectively binds the first-/second-person pronouns with the same person feature (Baker, 2023).

(43) $\text{OP}_{\text{sp/ad}}$ ... [... [... I/you ...]]

Following Tollan and Clemens (2022), the blocking effect of *ziji* can be attributed to the crossed binding paths of the first-/second-pronoun and *ziji*.

(44)   Zhangsan$_i$ renwei wo$_j$/ni$_j$ hai-le   ziji$_{*i/j}$.
        Zhangsan think   I/you   harm-ASP self
        'Zhangsan$_i$ thought I$_j$/you$_j$ harmed myself$_j$/yourself$_j$.'

The blocking in (44) is schematized in (45) in which the binding path of 'I' goes across that of *ziji*. *Wo* 'I' preceding *ziji* can be regarded as an intervener which obstructs $\text{pro}_{\log_i}$ from binding *ziji* by cutting across its binding path. The crossed pathway then results in the failure of the binding.

(45)   ... OPsp_j ... [... [[[$\text{pro}_{\log_i}$ ... [I_j ... *ziji*$_i$ ...]]]]]

When there is no crossed dependency, no blocking occurs. The first-/second-person pronoun in the object of the matrix verb doesn't block *ziji* from being bound by the matrix subject *Zhangsan*.

(46)   Zhangsan$_i$ gaosu wo$_j$/ni$_j$ Lisi hai-le   ziji$_{i/*j}$.
        Zhangsan tell   I/you   Lisi harm-ASP self
        'Zhangsan$_i$ told me$_j$/you$_j$ Lisi harmed him$_i$.'

(47)   ... OPsp_j ... [Zhangsan$_i$ ... I_j [[[$\text{pro}_{\log_i}$ ... [... *ziji*$_i$ ...]]]]]

The first-/second- matrix subject allows for long-distance dependency of *ziji* as well, repeated from (30) and (31). When the first-person pronoun becomes the matrix subject in (48), there is no overlapping of the two binding paths. The prediction is born out that no blocking occurs.

(48)   Wo$_i$/ni$_i$ renwei Zhangsan$_j$ hai-le   ziji$_{i/j}$.
       I/You   think Zhangsan harm-ASP self
       'I$_i$/You$_i$ thought Zhangsan$_j$ harmed me$_i$/you$_i$/himself$_j$.'

(49)   ... OP$_{sp_j}$ ... [I$_j$ ... [[[pro$_{log_i}$ ... [... *ziji*$_i$ ...]]]]]

If *ziji* sits between the matrix subject and the first-person *wo* in (50), despite the overlapping of paths, the one of *ziji* is encircled by that of *wo* without apparent crossing. It also follows our prediction that the blocking doesn't happen. =

(50)   Zhangsan$_i$ renwei ziji$_i$ hai-le   wo$_j$/ni$_j$.
       Zhangsan think self harm-ASP I/you
       'Zhangsan$_i$ thought he$_i$ harmed me$_j$/you$_j$.'

(51)   ... OP$_{sp_j}$ ... [... [[[pro$_{log_i}$ ... [*ziji*$_i$ ... I$_j$ ...]]]]]]

Here I will compare my analysis of the blocking effect to two accounts from the previous literature. They postulate that the blocking effect arises from feature mismatch (Huang and Tang, 1991) or perspectival conflicts (Huang and Liu, 2000).

Apart from the person feature, Huang and Tang (1991) propose the remote antecedent should agree with the local antecedent in number features. Since the remote antecedent *women* 'we' and the local one *ta* 'he' don't agree in the number feature in (52), they argue that the long-distance binding of *ziji* is thus ruled out by the number mismatch.

(52)   Women$_i$ renwei [ta$_j$ dui ziji$_{*i/j}$ meiyou   xinxin].
       we   think he to self   not-have confidence
       'We think that he has no confidence in himself.' (Huang and Tang, 1991:192 ex. 2d)

However, if there is only one plural antecedent, the sentence is also not acceptable. It may be the case that *ziji* cannot have a plural binder.

(53)   *Women$_i$/ *Tamen$_i$/ *Tongxuemen$_i$ dui ziji$_i$ meiyou   xinxin.
       we/   they/   student   to self not-have confidence
       'We/they/students didn't have confidence in ourselves/themselves.'

It is worth noting that for some speakers, they might find the sentence felicitous with the

reading 'for every person of us, he didn't have confidence in himself.' But when *ziji* refers to the plural antecedent, the sentence is ungrammatical. Another evidence against a plural antecedent of *ziji* is as follows. *Ziji* cannot refer to its local plural antecedent formed by coordination.

(54) [Zhangsan$_i$ he   Lisi$_j$]$_k$ kuajiang-le ziji$_{*i/*j/*k}$.
      Zhangsan   and Lisi   praise-ASP self
      'Zhangsan and Lisi praised themselves.'

Since both the number and feature mismatch are involved in (52), if we only have number mismatch and switch the positions of two antecedents as in (55), we can find that the plural local antecedent doesn't block the long-distance binding between *Zhangsan* and *ziji*. The number feature mismatch analysis wouldn't predict the nonlocal binding in (55) and cannot explain the failure of the local plural antecedent binding into *ziji*.

(55) Zhangsan$_i$ renwei tongxue-men$_j$ guli-le   ziji$_{i/*j}$.
      Zhangsan think   classmate-PL isolate-ASP self
      'Zhangsan$_i$ thought the classmates$_j$ isolated him$_i$/themselves$_j$.'

Therefore, I argue that the number feature mismatch between potential binders doesn't induce blocking. The reason for the failure of long-distance binding in (52) can result from *ziji*'s inability to have a plural binder.

   Unlike Huang and Tang (1991), Huang and Liu (2000) propose that the blocking effect is due to perspectival conflicts. Following Kuno (1972) analysis, the long-distance *ziji* is a logophor co-construed with the matrix subject, the 'speaker' of the embedded clause. The blocking analysis is based on the pronoun conversion of logophoric *ziji*.

   Under the specific co-construal relation in (56-a), the whole sentence is a direct report of John's experience and derived from (56-b). The pronoun *I* in (56-b) directly converts to *he* in (56-a) without intermediate steps.

(56) a.   John$_i$ said that he$_i$ saw Bill.
      b.   John said, 'I saw Bill.' (Huang and Liu, 2000:306 ex. 14)

Since *ziji* refers to the speaker of the embedded clause, it can undergo the conversion to *wo* 'I' in the direct quotation (Huang et al., 1984).

(57) Zhangsan$_i$ shuo Lisi hai-le   ziji$_i$.
      Zhangsan say   Lisi harm-ASP self
      'Zhangsan$_i$ said Lisi harmed him$_i$.'

(58) Zhangsan shuo, 'Lisi hai-le   wo.'
      Zhangsan say   Lisi harm-ASP I

'Zhangsan said, "Lisi harmed me."'

When the embedded subject is the first-person pronoun 'wo' in (59), its direct discourse representation is (60). In (60), there are two occurrences of 'wo' with different references from different contexts. The first one refers to the speaker of the whole sentence while the second refers to the matrix subject *Zhangsan*, the speaker of the embedded clause. This perspective conflict gives rise to the blocking effect and the long-distance use of *ziji* fails.

(59) *Zhangsan$_i$ shuo wo$_j$ hai-le   ziji$_i$.
       Zhangsan   say I   harm-ASP self
       'Zhangsan$_i$ said I harmed him$_i$.'

(60) *Zhangsan$_i$ shuo, 'wo$_j$ hai-le   wo$_i$.'
       Zhangsan   say I   harm-ASP I
       'Zhangsan said, "I harmed me."'

While there are also two instances of 'wo' in (62), unlike those in (60) they have the same reference, the speaker of the whole sentence and therefore share the same perspective. Then, there is no blocking.

(61) Wo$_i$ shuo Zhangsan$_j$ hai-le   ziji$_i$.
       I   say Zhangsan   harm-ASP self
       'I said Zhangsan harmed me.'

(62) Wo$_i$ shuo, 'Zhangsan$_j$ hai-le   wo$_i$.'
       I   say Zhangsan   harm-ASP I
       'I said, "Zhangsan harmed me."'

The third-person DP is assumed to be perspective neutral and cause no blocking.

According to the perspective analysis, the embedded clause is mainly the direct report of the matrix subject's knowledge, thoughts and feelings. When the embedded clause describes an event related to the matrix subject, the analysis doesn't apply and the blocking in (63) cannot be accounted for in this approach.

(63) Zhangsan$_i$ faxian wo$_j$ qipian-le   ziji$_{*i}$.
       Zhangsan find   I   deceive-ASP self
       'Zhangsan$_i$ found out that I deceived him$_{*i}$.'

Additionally, this approach incorrectly rules out (64), repeated from (31), since there are two occurrences of *wo* 'I' from two different perspectives in the direct quotation. However, this sentence is what the crossed-dependency analysis predicts.

(64) Zhangsan$_i$ renwei ziji$_i$ hai-le wo$_j$.
Zhangsan think self harm-ASP I
'Zhangsan$_i$ thought he$_i$ harmed me$_j$.'

(65) Zhangsan$_i$ renwei, 'wo$_i$ hai-le wo$_j$.'
Zhangsan think I harm-ASP I
'Zhangsan$_i$ thought he$_i$ harmed me$_j$.'

Thus, I will adopt the crossed-dependency analysis for the blocking effect on *ziji*.

3.4   Blocking and the fragment

Besides in full sentences, the blocking effect also appears when *ziji* is in a fragment answer. *Ziji* can refer to the remote antecedent *Zhangsan* in (66) but cannot in (67) with an intervening first-person pronoun *wo* 'I'. The blocked *ziji* can hardly be used as a fragment to refer to *wo* 'I' in the question, since there is a perspective shift from the speaker to the answerer in the discourse, but can be forced to.
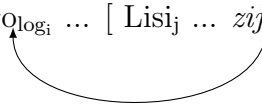
(66) a. Zhangsan$_i$ renwei Lisi$_j$ hai-le shui?
Zhangsan think Lisi harm-ASP who
'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

b. Ziji$_{i/j}$.
self
'Him$_i$/himself$_j$.'

(67) a. Zhangsan$_i$ renwei wo$_j$ hai-le shui?
Zhangsan think I harm-ASP who
'Who did Zhangsan$_i$ think I$_j$ harmed?'

b. Ziji$_{*i/*j}$.
self
'*Him$_i$/yourself$_j$.'

Assuming there is no structure in the fragment, *ziji* is able to refer to any salient DP in the discourse regardless of an intervening first-person *wo* in the question. However, this is not the case. In (67), the long-distance dependency of *ziji* fails, suggesting the existence of the LogP in the fragment, repeated from (45).

(68)   ... OPsp$_j$ ... [... [[[$_{LogP}$ pro$_{log_i}$ ... [I$_j$ ... *ziji*$_i$ ...]]]]]
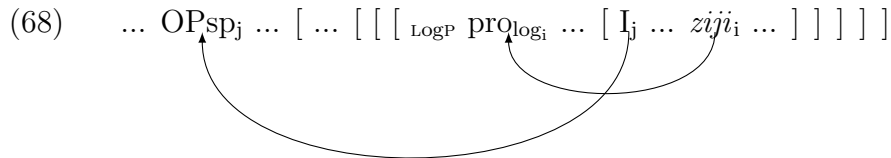
As for (66), since the two subjects are third-person, there is no speaker/addressee operator. No crossing dependency is created and thus no blocking. The fragment *ziji* can co-construe

with the matrix subject via $\text{pro}_{\log_i}$ and is locally bound by *Lisi* under Condition A.

(69) ... Zhangsan$_i$ ... [... [[[$_{\text{LogP}}$ pro$_{\log_i}$ ... [Lisi$_j$ ... *ziji*$_{i/j}$ ...]]]]]

Since blocking of *ziji* occurs in full sentences and fragments as shown above, it suggests that the same syntactic structure and operation such as LogP and crossed dependencies be involved in these constructions. It further supports Merchant (2004)'s analysis of fragments.

4 The long-distance dependency of the fragment *taziji*

Now that we have had the background on fragments and the analytical tools, let's see how the non-local binding of *taziji* is created in fragment answers.

4.1 Background on *taziji*

The reflexive *taziji* can only be bound locally under Condition A (Chomsky, 1981). For example, *taziji* in (70) is bound by its local antecedent *Lisi*.

(70) Zhangsan$_i$ renwei Lisi$_j$ hai-le   taziji$_{*i/j}$.
Zhangsan think Lisi harm-ASP himself
'Zhangsan thought Lisi harmed himself.'

4.1.1 A true reflexive

The plain anaphor *taziji* can be decomposed into two morphemes, *ta* and *ziji*. It then raises the question as to whether *taziji* is a true reflexive or a pronoun followed by an emphatic, since the pronoun-intensifier combination is a common way to create reflexives cross-linguistically. Considering *ziji* can be used as an intensifier Pan (1997), *taziji* does follow the pattern and can be regarded as a pronoun modified by an emphatic reflexive.

Therefore, we need to distinguish between a true reflexive *taziji* and a emphatic pronoun. Following Ahn (2010), I treat *ziji* as an adnominal intensifier, emphasizing the identity of the modified DP. In the example below, the sentence means that it is a particular person not someone else that went to the park.

(71) Ta-ziji qu-le   gongyuan.
himself go-ASP park
'He himself went to the park.'

If this is the case, the combined *taziji* can be replaced by a proper name followed by an intensifier. However, the prediction isn't born out as in (72-b) and (74), violation of Condition

C, indicating *taziji* in (72-a) is a true reflexive.

(72)   a.   Zhangsan$_i$ hai-le   taziji$_i$.
                  Zhangsan harm-ASP himself
                  'Zhangsan harmed himself'

           b.   ??Zhangsan$_i$ hai-le   Zhangsan ziji$_i$.
                  Zhangsan   harm-ASP Zhangsan self
                  'Zhangsan harmed Zhangsan himself.'

The embedded object *taziji* in the full sentence can't be substituted as well.

(73)   Zhangsan$_i$ renwei Lisi$_j$ hai-le   taziji$_{*i/j/*k}$.
          Zhangsan think Lisi harm-ASP himself
          'Zhangsan thought Lisi harmed himself.'

(74)   Zhangsan$_i$ renwei Lisi$_j$ hai-le   *Zhangsan ziji/ *Lisi ziji.
          Zhangsan think Lisi harm$_A$SP Zhangsan self/ Lisi self
          'Zhangsan thought Lisi harmed Zhangsan himself/ Lisi himself.'

The same result appears in fragments. *Taziji* cannot be replaced when it refers to the matrix subject.

(75)   a.   Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
                  Zhangsan think Lisi harm-ASP who
                  'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

           b.   Taziji$_{?i/j}$.
                  himself
                  'Him$_i$/Himself$_j$.'

(76)   a.   Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
                  Zhangsan think Lisi harm-ASP who
                  'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

           b.   *Zhangsan ziji.
                  Zhangsan self
                  'Zhangsan himself.'

When the fragment *taziji* refers to the embedded subject, the replacement is still not allowed.

(77)   a.   Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
                  Zhangsan think Lisi harm-ASP who
                  'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

           b.   *Lisi ziji.
                  Lisi   self
                  'Lisi himself.'

Therefore, the fragment *taziji* discussed in this paper, is a real reflexive not a pronoun with an adnominal intensifier.

4.1.2   The nonlocal *taziji*

However, *taziji* can establish a long-distance dependency under some circumstances (Pan, 1997). The first one is when the local antecedent is inanimate in (78) or the local animate antecedent does not c-command *taziji* in (79).

(78)   Zhangsan$_i$ renwei nabenshu$_j$ hai-le   taziji$_{i/*j}$.
        Zhangsan think   that book harm-ASP himself
        'Zhangsan$_i$ thought that book harmed him$_i$'

(79)   Zhangsan$_i$ renwei [Lisi$_j$ de shubao$_k$] zadao-le   taziji$_{i/*j/*k}$.
        Zhangsan think   Lisi DE backpack smash-ASP himself
        'Zhangsan$_i$ thought that he was injured by Lisi's backpack falling on him$_i$.'

In (78), *taziji* skips the local but inanimate antecedent *naben shu* 'that book' to be co-construed with the remote antecedent *Zhangsan*. Despite a potential animate antecedent *Lisi* in (79), *taziji* refers to the distant antecedent *Zhangsan* because the potential antecedent is embedded in a possessive phrase and cannot c-command *taziji* (Pan, 1997).

One exception for the non-commanding antecedent to bind the reflexive is when the possessive phrase can work as a proxy of this embedded antecedent. When the possessive phrase changes from *Lisi's backpack* in (79) to *Lisi's words* in (80), the embedded antecedent *Lisi* can bind *taziji* and the long-distance dependency of *taziji* cannot be formed.

(80)   Zhangsan$_i$ renwei [Lisi$_j$ de hua$_k$] hai-le   taziji$_{*i/j/*k}$.
        Zhangsan think   Lisi DE word harm-ASP himself
        'Zhangsan$_i$ thought that Lisi$_j$'s words harmed him$_j$.'

Therefore, *taziji* can be nonlocally bound, when there is not an intervening binder in its local domain (Pan, 1997).

Taziji as an embedded subject also has the ability to create a distant binding relation across the clausal boundary as below. As in (81), the embedded subject *taziji* refers to the matrix subject *Lisi* in the higher clause but doesn't get co-construed with *Zhangsan* within the same binding domain as a Condition A violation.

(81)   Lisi$_i$ shuo taziji$_{i/*j}$ gei Zhangsan$_j$ mai hua   le.
        Lisi say   himself give Zhangsan buy flower ASP
        'Lisi$_i$ said himself$_{i/*j}$ bought Zhangsan$_j$ flowers.'

Since the local antecedents in the wh-interrogative in (1) and in **??**, repeated below are an

animate subject and c-command the reflexive, the embedded object *taziji* in these cases can only be a local anaphor and cannot build a long-distance dependency.

(82) a. Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
          Zhangsan think Lisi harm-ASP who
          'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

      b. Taziji$_{(?)i/j}$.
          himself
          'Him$_i$/Himself$_j$.'

(83) Zhangsan$_i$ renwei Lisi$_j$ hai-le   taziji$_{*i/j}$.
      Zhangsan think Lisi harm-ASP himself
      'Zhangsan thought Lisi harmed himself.'

Thus, *taziji* in this paper is a local anaphor and the first possibility to the distant binding is ruled out.

4.2 The analysis

4.2.1 The long-distance dependency of *taziji*

First, let's recap the puzzle. When there are two animate antecedents in (84), the reflexive *taziji* is locally bound and cannot co-construe with the remote antecedent. Therefore, there is no blocking effect on *taziji* in a non-elliptical structure. If *taziji* occurs in the fragment, it can refer to a distant antecedent as a fragment in (85).

(84) Zhangsan$_i$ renwei Lisi$_j$ hai-le   taziji$_{*i/j}$.
      Zhangsan think Lisi harm-ASP himself
      'Zhangsan thought Lisi harmed himself.'

(85) a. Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
          Zhangsan think Lisi harm-ASP who
          'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

      b. Taziji$_{(?)i/j}$.
          himself
          'Him$_i$/Himself$_j$.'

Unlike that of *ziji*, this long-distance dependency of *taziji* remains when the local antecedent is a first-person pronoun without the blocking effect. Despite an intervening first-pronoun, the fragment *taziji* refers to the distant binder below.

(86) a. Zhangsan$_i$ renwei wo$_j$ hai-le   shui?
          Zhangsan think I   harm-ASP who
          'Who did Zhangsan$_i$ think I$_j$ harmed?'

b. Taziji$_{(?)i}$.
   himself
   'Him$_i$.'

4.2.2 Movement of *taziji*

Since Mandarin is a *pro*-drop language (Huang and Yang, 2013a), it is possible for *taziji* in fragments to be base-generated and get co-indexed with a null *pro*. In (87), *pro* is the base-generated topic and co-indexed with the base-formed *taziji*.

(87) a. Zhangsan$_i$ biaoyang-le shui?
       Zhangsan praise-ASP who
       'Who did Zhangsan$_i$ praise?'
   b. *pro*$_i$ Taziji$_i$.
          himself
       'Him$_i$.'

However, this possibility is ruled out since *taziji* is able to move as it exhibits island violation and the base-generated analysis cannot explain the blocking effect on *ziji* as a fragment mentioned in Section 3.

(88) Zhangsan$_i$ yidian-er dou   bu zaihu taziji$_i$.
     Zhangsan a little   DOU not care   himself
     'Zhangsan didn't care about himself at all.'

(89) Taziji$_{?i}$, Zhangsan$_i$ yidian-er dou   bu zaihu.
     himself, Zhangsan a little   DOU not care
     'Zhangsan didn't care about himself at all.'

To demonstrate that it is movement that causes the displacement of *taziji* in (89), the adjunct island test is applied below. *Taziji* fails to sit at the left-periphery in (91) since it attempts to move out of an adjunct island.

(90) Yinwei Zhangsan$_i$ yidian-er dou   bu zaihu taziji$_i$, ta$_i$ mama   hen danxin ta$_i$.
     because Zhangsan a little   DOU not care   himself, he mother very worry   him
     'Because Zhangsan didn't care about himself at all, his mother worried about him a lot.'

(91) *Taziji$_i$, yinwei   Zhangsan$_i$ yidian-er dou   bu zaihu, ta$_i$ mama   hen danxin ta$_i$.
     himself, because Zhangsan a little   DOU not care, he mother very worry   him
     'Because Zhangsan didn't care about himself at all, his mother worried about him a lot.'

Apart from the reflexive *taziji*, the pronoun *ta* 'him' can appear at the left-periphery without

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violation of Condition B.

(92) Zhangsan$_i$ yidian-er dou bu zaihu ta$_k$.
      Zhangsan a little   DOU not care   him
      'Zhangsan$_i$ didn't care about him$_k$ at all.'

(93) Ta$_k$,   Zhangsan$_i$ yidian-er dou   bu zaihu.
      he/him, Zhangsan a little   DOU not care
      'Zhangsan$_i$ didn't care about him$_k$ at all.'

Similar to *taziji*, it is difficult for *ta* to move out of an island.

(94) Yinwei Zhangsan$_i$ yidian-er dou   bu zaihu ta$_k$, ta$_k$ bu lai   ye   mei
      because Zhangsan a little   DOU not care   him, he not come EXCL not
      guanxi.
      importance
      'Because Zhangsan didn't care about him at all, it didn't matter if he didn't come.'

(95) *Ta$_k$,   yinwei Zhangsan$_i$ yidian-er dou   bu zaihu, ta$_k$ bu lai   ye   mei
      he/him, because Zhangsan a little   DOU not care, he not come EXCL not
      guanxi.
      importance
      'Because Zhangsan didn't care about him at all, it didn't matter if he didn't come.'

Taziji can also move to an intermediate position and its co-referent relation is slightly different from *ta*'s.

(96) Zhangsan$_i$ shuo taziji$_{(?)i/(??)j}$/ ta$_{i/*j/k}$, Lisi$_j$ da-le.
      Zhangsan say   himself/   he,   Lisi beat-ASP
      'Zhangsan said he, Lisi beat.'

The clause size matters for movement of *taziji*. *Taziji* in the embedded clause cannot move to the left-periphery of the matrix clause.

(97) Taziji$_{*i/*j}$, Zhangsan$_i$ shuo Lisi$_j$ yidian-er dou   bu zaihu.
      himself,   Zhangsan say   Lisi a little   DOU not care
      'Zhangsan$_i$ said Lisi$_j$ didn't care about himself$_j$/him$_i$ at all.'

The nonlocal anaphor *ziji* is not allowed to appear at the left-periphery, either.

(98) *Ziji$_i$, Zhangsan$_i$ yidian-er dou   bu zaihu.
      self, Zhangsan a little   DOU not care
      'Zhangsan didn't care about himself at all'

Proper names behave differently. There is no apparent violation of islands. According to

Huang and Yang (2013b), the proper name below can be an overt, base-generated topic which gets co-indexed with a *pro* within the island. Since they are base-generated, there is also no clause-size restriction.

(99) Lisi$_i$, [Zhangsan yidian-er dou bu zaihu *pro*$_i$].
      Lisi, Zhangsan a little   DOU not care
      'Zhangsan didn't care about Lisi at all.'

(100) Lisi$_j$, [yinwei Zhangsan$_i$ yidian-er dou bu zaihu *pro*$_j$], ta$_j$ bu lai   ye   mei
      Lisi, because Zhangsan a little   DOU not care   he not come EXCL not
      guanxi.
      importance
      'Zhangsan didn't care about Lisi at all, it didn't matter if he didn't come.'

(101) Wangwu$_i$, [Zhangsan shuo Lisi yidian-er dou bu zaihu *pro*$_i$].
      Wangwu, Zhangsan say   Lisi a little   DOU not care
      'Zhangsan said Lisi didn't care about Wangwu at all.'

In summary, while *ziji* is not allowed at the left-periphery, those anaphoric expressions that can sit in that topic position show their ability to move, particularly the local anaphor *taziji* and pronoun *ta*.

4.2.3   The subject *taziji*

The contrastive *taziji* can be used without a linguistic antecedent since it can have the discourse topic as its referent (Pan, 1997).

(102) Taziji   mei chi.
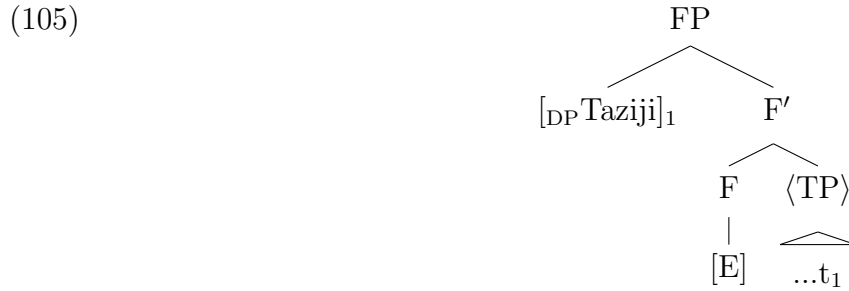   himself not eat
      'He himself has not eaten yet.'

It raises the question as to whether the subject *taziji* is a true reflexive as its object counterpart. While the object *taziji* cannot be replaced by the 'pronoun+intensifier' combination, the subject *taziji* can. It indicates that the fragment answer to a subject correlate can be a pronoun followed by an adnominal intensifier. What makes this fragment distinct is that the pronoun must appear together with the intensifier.

(103) Taziji/Zhangsan   ziji ye   mei chi.
      himself/Zhangsan self also not eat
      'He/Zhangsan himself has also not eaten yet.'

(104) a. Shui gei   Zhangsan$_i$ maihua-le?
          who give Zhangsan buy flower-ASP
          'Who bought Zhangsan flowers?'

b. Taziji$_i$.
   himself

c. Zhangsan ziji.
   Zhangsan self

4.2.4 The proposal

Equipped with the background from the previous sections, we are now ready to explain the distribution of *taziji* in fragments. Following Merchant's idea, I propose the local anaphor *taziji* in fragments moves to escape ellipsis. As a result of this movement, it can build a binding relation with a remote antecedent which is originally outside its binding domain. It finally moves to a clausal-periphery position followed by the ellipsis of the host clause to form a fragment answer.

(105)

```
                    FP
                   /  \
         [DP Taziji]1   F′
                       /  \
                      F   ⟨TP⟩
                      |     ⌒
                     [E]   ...t1
```

The way the fragment *taziji* creates a long-distance dependency is parallel to how a reconstructed reflexive in English takes a remote antecedent. As observed previously (Barss, 1986; Barker and Shan, 2014), a moved reflexive can refer to a remote antecedent, namely the matrix subject which is impossible if it stays in its base-position.

(106) a. Which picture of himself does John claim Mary like _?
       b. *John claimed Mary liked a picture of himself. (Barker and Shan, 2014:58 ex. 106)

The anaphor *himself* in (106) has varied binding relations. While in (106-b) it fails to be bound locally by the only option *Mary* due to incompatible gender features, it can have a remote antecedent *John* from its reconstructed site in (106-a). Reconstruction allows a reflexive to have a wider range of possible binders than it would have if generated in the reconstruction position (Barker and Shan, 2014). Let's return to the binding of *taziji* in the fragment and non-fragment forms below repeated from (84) and (85).

(107)   Zhangsan$_i$ renwei Lisi$_j$ hai-le   taziji$_{*i/j}$.
        Zhangsan think   Lisi harm-ASP himself
        'Zhangsan thought Lisi harmed himself.'

(108)   a.   Zhangsan$_i$ renwei Lisi$_j$ hai-le   shui?
                 Zhangsan think   Lisi harm-ASP who
                 'Who did Zhangsan$_i$ think Lisi$_j$ harmed?'

         b.   Taziji$_{(?)i/j}$.
                 himself
                 'Him$_i$/Himself$_j$.'

The in-situ *taziji* in (107) can only take a local binder as *himself* in the reconstruction site while the fragment *taziji* has a remote binder the same as the reconstructed *himself*. The distant binding of the fragment *taziji* is expected by the proposed analysis.

(109)   Taziji ⟨[TP ~~Zhangsan renwei t_1 Lisi hai-le t_2~~]⟩.

Taziji in (109) can take a local binder from its base-position t_2 under Condition A. The Ellipsis feature on the functional head F triggers *taziji* to move. It first moves to t_1 within a binding domain to be bound by the distant antecedent *Zhangsan* and finally arrives at the clausal-periphery site followed by the ellipsis of the angle-bracketed TP. The long-distant binding of *taziji* in Mandarin fragments suggests that movement in ellipsis can be successive cyclic against Fox and Lasnik (2003)'s proposal. It also adds a piece of evidence to the ellipsis account of fragments.

     Although *taziji* cannot cross two clausal layers as previously illustrated in (97), adopting 'repaired by deletion' (Merchant, 2001), I assume the case here can be remedied by ellipsis. The deviant structure violating relevant PF constraints can be rescued by deletion while the derivational violation cannot (Mendes, 2020). Accordingly, the crossing of *taziji* is a PF violation and can be repaired by deletion.

     As for the matrix subject *taziji* in the fragment, following Merchant's analysis of Condition C violation of pronouns, I suggest there is no Condition C violation since the proper name *Zhangsan* which triggers the violation is deleted.

     To explain the apparent Condition A violation, I assume *taziji* in (110) is a pronoun followed by an adnominal intensifier, since it can be replaced by a 'proper name+ziji' combination. The pronoun can accidentally co-construe with the most salient discourse referent. Condition A is not violated. However, one stipulation is made that the adnominal intensifier cannot be deleted if the pronoun refers to the matrix subject.

(110)   a.   Shui gei Zhangsan$_i$ mai hua   le?
                 who give Zhangsan buy flower ASP
                 'Who bought Zhangsan$_i$ flowers?

         b.   Taziji$_i$/Zhangsan ziji.
                 himself/self/him
                 'Him$_i$.'

Regarding the blocking effect, when *taziji* moves a position closer to the matrix subject, it is outside the binding domain of the local antecedent and not c-commanded by it. Consequently, the blocking doesn't arise.

In terms of *ziji*, since its binding relation is mediated by a logophoric operator, I assume *ziji* can only be bound from its base-position. Despite that it can form a fragment answer independently, it doesn't show reconstruction effects as *taziji*. The existence of the blocking effect on *ziji* in fragments indicates that there are the same syntactic structure and operations involved in fragments and non-fragments in Mandarin.

5 Conclusion

In this paper, we have a deeper understanding of Mandarin reflexives and ellipsis. The plain anaphor *taziji* in Mandarin can create a long-distance dependency when forms a fragment answer. In terms of the *Blocking Effect*, the different behavior of *ziji* and *taziji* indicates the existence of a full structure in fragments. The island effects on the fragment *taziji* suggests the involvement of movement. The non-local binding is thus achieved by the movement of *taziji* and the deletion of the remaining TP, which supports Merchant (2001, 2004)'s analysis on ellipsis.

One issue needs to be further addressed. While the matrix subject *taziji* in fragments is analyzed as a pronoun followed by an adnominal intensifier, the necessity of an intensifier needs more explanation.

Besides Mandarin reflexives, the long-distance anaphors in other languages may exhibit the same binding pattern and be worth investigation in the future. It may reveal the intrinsic properties of anaphors crosslinguistically and the nature of elliptical construction.

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