

On the interplay of topicality and perspectival information in reference resolution: Insights from anaphoric reflexives

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Introduction. Reference resolution is a key component of discourse processing. Information in prior discourse such as referents' topicality, grammatical and thematic roles create expectations about who will be mentioned next and with what kind of referring expression [1–3]. Whether a referent is the perspectival/logophoric center has also been found to guide pronoun interpretation [4,5]. There also exists a mostly separate line of work on perspective-sensitive *reflexives* (e.g. [6,7]), with a syntactic focus, which seeks to understand issues related to Binding Theory. We bring together insights from these two lines of work. We report two experiments on Mandarin Chinese, focusing on subject-position reflexives with antecedents in the preceding clause. We test how interpretation of these reflexives is guided by potential antecedents' syntactic position, topicality, and perspectival status, in order to see whether their interpretation is primarily guided by syntactic cues or by the integration of syntactic and discourse-level cues, as proposed by the **multiple-constraint approach** [8–11].

The simple reflexive *ziji* 'self' and the complex reflexive *ta-ziji* 'himself/herself' differ in their sensitivity to structural and non-structural factors (e.g. the perspective center [12–14]). These forms have been found to be sensitive to topicality and source-of-information, and authors treat these factors as related to perspective-taking [9,11]. But it remains unclear how different perspective-related cues jointly shape reflexive resolution, and whether other perspective-related cues matter.

In our work, we manipulate whether referents are topical (i.e. prominent in the discourse) and whether they are **experiencers** (i.e., whether their theta-role, as assigned by a psych verb, is experiencer or stimulus). Psych verbs (e.g. *admire*, *fear*, *amaze*, also see ex.1a-b) express mental and cognitive states/experiences, and the **experiencer** argument seems to be a natural candidate to serve as a perspectival center. Testing how topicality and **experiencer** interact in guiding the interpretation of *ziji* and *ta-ziji* allows us to evaluate perspective-based accounts of Mandarin long-distance anaphora.

Experiments. In our targets, the **experiencer** appears in either **subject** or **object** position (ex.1a-b).

(1a) **Experiencer–Stimulus (ES)** verbs: John_{EXP} fears Mary_{STIM}

(1b) **Stimulus–Experiencer (SE)** verbs: John_{STIM} frightens Mary_{EXP}

Methods. We ran two web-based sentence-completion experiments with native Mandarin speakers, **Exp.1** on *ziji* ($N = 57$), and **Exp.2** on *ta-ziji* ($N = 65$). As shown in ex.(2), both experiments had a 2×2 design, crossing Topicality (**Subj-Topic/Obj-Topic**) and Psych-verb Type (**ES/SE**, see ex.(3) for more verb examples). Each target began with a discourse lead-in introducing one referent as the topic (e.g. Xiaoyu or Xiaolei). The second clause contained either an **ES** or **SE** verb, used a pronoun in subject/object position to refer to the topic, and introduced a new name in the other argument position. The third clause, which participants complete, starts with *ziji* or *ta-ziji* in subject position. We test how the reflexives are used cross-clausally: Which of the two referents in the second clause do participants use *ziji* (Exp 1) or *ta-ziji* (Exp 2) to refer to? (See ex.(4) for corpus examples of *ziji* and *ta-ziji* in subject position.) Participants completed 24 targets and 26 fillers.

(2) Example target (The two referents had the same gender; here, *Xiaoyu* and *Xiaolei* are both male).

a. **Subject** is discourse topic and **Experiencer**

让我们聊聊 小宇 这个人 吧, 他 去年 的 时候 想念 小磊,
let us talk Xiaoyu this-CL person SFP 3SG last-year MOD time miss Xiaolei,
所以 自己 / 他自己...
so ziji / ta-ziji...
'Let's talk about Xiaoyu, **he_{exp}** missed **Xiaolei_{stim}** last year, so *ziji* / *ta-ziji*...'

b. **Subject** is discourse topic and **Stimulus**

[same lead-in as (a)] ... **he_{stim}** reassured **Xiaolei_{exp}** last year, so *ziji* / *ta-ziji*...'

c. **Object** is discourse topic and **Stimulus**

让我们聊聊 小磊 这个人 吧, 小宇 去年 的 时候 想念 他,

let us talk Xiaolei this-CL person SFP Xiaoyu last-year MOD time miss 3SG,
 所以 自己 / 他自己...
 so ziji / ta-ziji...
 ‘Let’s talk about Xiaolei, Xiaoyu_{exp} missed him_{stim} last year, so ziji / ta-ziji...’

d. Object is discourse topic and Experiencer

[same lead-in as (c)] Xiaoyu_{stim} reassured him_{exp} last year, so ziji / ta-ziji...’

(3) Additional ES and SE verbs we used (Chinese verbs are SE/ES, English translations may not be):

ES: 可怜 ‘pitied’, 欣赏 ‘admired’, 鄙视 ‘despised’

SE: 侮辱 ‘insulted’, 骚扰 ‘harassed’, 激励 ‘stimulated’

(4) Corpus example of ziji and ta-ziji in subject position (Peking University CCL Online Corpus):

自己已经不正当了 ‘Ziji is already inappropriate.’ | 他自己已决定在未来的演讲中默想圣经 ‘Ta-ziji has decided to meditate on the Bible in future speeches.’

Data analysis. Participants’ continuations were analyzed for whether the reflexive referred to the preceding subject or object. Continuations were double-coded by 2 native Mandarin speakers. Mixed-effects logistic regression was used. A combined analysis included reflexive type (ziji vs. ta-ziji) as a between-subjects factor to examine similarities and differences between the two reflexive forms.

Results. In Exp.1, ziji was sensitive to both topicality and experiencer status (Fig.1). Participants were more likely to produce subject-referring continuations when the subject was topical rather than non-topical ($p < 0.01$) and when it was an experiencer rather than a stimulus ($p < 0.01$). Reflexive resolution is shaped not only by discourse prominence but also by experiencer status. If we regard experiencer status as associated with being the perspectival center, our results provide new evidence for the claim that ziji is perspective-sensitive. Exp.2 yields similar effects for ta-ziji (Fig. 2), with effects of antecedent topicality ($p < 0.01$) and experiencer status role ($p < 0.01$). A comparison of Exp1/2 shows ziji has a stronger subject bias than ta-ziji ($p < 0.05$): there are form-specific differences in cue weights.

Conclusions. Our findings contribute to discourse-level accounts of reference processing by showing that cross-clausal resolution of Mandarin reflexives is guided by multiple discourse-relevant cues. **First**, we show that both ziji and ta-ziji favor antecedents with the experiencer role, revealing a new way in which perspective-sensitivity guides reference resolution. **Second**, we find evidence for the integration of multiple competing cues, consistent with a multiple-constraint approach [8,9]. **Third**, cue weighting also differs across reflexive forms, with ziji showing a stronger subject bias than ta-ziji.

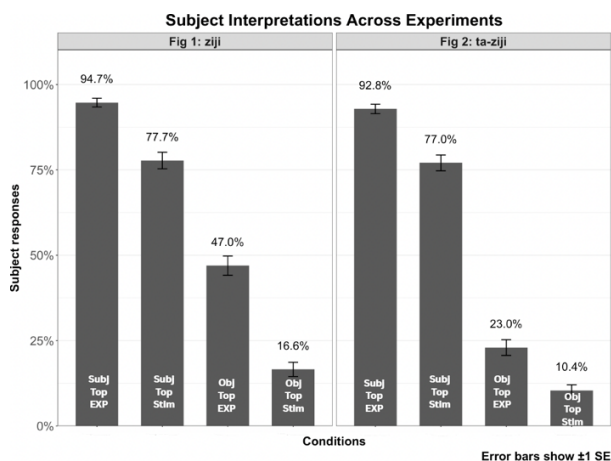


Fig.1 (left) and **Fig.2** (right): % of trials in which participants interpreted ziji/ta-ziji as referring to the subject (Subj-Top = subject as discourse topic, Obj-Top = object as discourse topic, EXP = experiencer, Stim = stimulus).

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