Reflexivization in Mandarin Chinese: Analysis of '*zi*-verbs'

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The Chinese long-distance anaphora *ziji* has long been regarded as a morphologically simplex (or mono-morphemic) anaphora (Huang and Tang 1991, Pan 1998). However, the existence of the reflexive marker *zi* can show that *ziji* is actually complex and bi-morphemic. It is not rare for a language to adopt both anaphora and reflexive predicates to encode reflexivity (Dimitriadis and Everaert 2014). But what is interesting about Mandarin Chinese is that the reflexive marker *zi* ('self') which Chinese uses to reflexivize verbs in (1a)is also the first morpheme of the anaphora *ziji* ('oneself') in (1b). And '*zi*-verb' requires the verb's two theta roles be assigned to the same individual to encode a reflexive meaning.

1a. Zhangsan   **zi**-sha-le.
    Zhangsan self-kill-Pef. ('Zhangsan killed himself.')
  b. Zhangsan   sha-le   **ziji.**
    Zhangsan   kill-Pef   oneself.('Zhangsan killed himself.')

It is common for the 'SELF' part of an anaphora to compose 'reflexive words', like 'self-assessment'. In English, the construction of '*self*-verb' is impossible, but in Mandarin Chinese, reflexive predicate '*zi*-verbs' seem to be productive. In this sense, Chinese *zi* is more similar to Dutch *zich* and French *se* which can compose reflexive predicate with more verbs than English *self*, as I explained in this paper.

This paper is written to dissect the syntactic characteristics of '*zi*-verbs'. Following mainly the theory of the Theta System (Reinhart 2002), and the lexicon-syntax parameter setting of reflexivization (Reinhart and Siloni 2005), this paper will prove *zi* is a marker of reflexivization (more specifically: bundling), similar to Dutch *zich* and French *se*. And the bundling operation applies at syntax level in Mandarin Chinese, the same as French.

I firstly made categorization of '*zi*-verbs'. I will distinguish two categories of '*zi*-verbs' in Mandarin Chinese: (i) Group1&2: reflexive '*zi*-verbs', which triggers bundling. (ii) Group3&4: '*zi*-verbs' without a true reflexive meaning, and bundling is not triggered. That is illustrated in the chart below:

No.	Type	Example	Theta grid of the verb has been changed?	*Zi*- is droppable?	Reflexive verb?
1	*Zi*-agentive verb	***Zi-sha*** (self-kill)	Yes	No	Yes
2	*Zi*-sentient verb (with ECM)	*Zhangsan* ***zi-zhi*** *conghui.* Zhangsan self-knows smart. 'Zhangsan knows himself smart.'			
3	*Zi*-agentive verb	***Zi-bei*** (self-prepare)	No	Yes	No
4	*Zi*-unaccusative verb	***Zi-zhuan*** (self-rotate) ***Zi-ran*** (self-burn)			

I then focused only on reflexive 'zi-verbs', and proved bundling is needed. By adopting subject/object comparison test, I proved 'zi-verbs' are intransitive with only one argument, since only the Sloppy reading is allowed for 'zi-verbs'. And both Agent and Theme roles are accessible in 'zi-verbs', due to the fact that it 'zi-verbs' are not only compatible with Instruments which needs to be licensed by Agent, but also the patient-target adverb 'painfully'. So 'zi-verbs' have two theta roles, but only one argument. And bundling is needed in this case to keep the Theta Criterion (Chomsky 1986). I also demonstrated *zi* is needed to check the accusative case feature of the reflexive verb, by showing reflexive *zi-* is incompatible with passive verbs. One of the distinction between reflexive 'zi-verbs' and non-reflexive 'zi-verbs' is whether *zi* can be deleted or not. *Zi* in reflexive 'zi-verbs' is not deletable, since it is an essential pat of reflexivization, while *zi* in non-reflexive 'zi-verbs' can be dropped.

Moreover, I proved reflexivization happens at the syntax level in Chinese rather than lexicon. And the evidence will be mainly from reflexive ECM structure, like (2a). The matrix and embedded predicates of the ECM construction are irrelevant in lexicon, and it is impossible for lexicon operation working on theta roles of two unrelated verbs at the same time. As a result, only syntax operation can achieve that. As illustrated in chart 3, the un-canonical behavior of 'zi-verbs' in Mandarin Chinese, as a syntax language, in 'Dative construction' and 'Productivity' can be explained by morphological and historical reasons, respectively. That does not influence the fact that Chinese is still categorically a syntax language now. The detailed derivation process of bundling in Mandarin Chinese is given in (2b-d).

2.a. Zhangsan   **zi-yiwei**   tianfuguoren.
    Zhangsan   self-considers   highly talented. ('Zhangsan considers himself very talented.')
b.Embedded ECM: $[_{IP}$ [tianfuguoren $_{<\theta i>}$]]
c.Next VP $[_{VP}$ zi-yiwei$_{<\theta k>}$ $[_{IP}$ [tianfuguoren $_{<\theta i>}$]]$_{<\theta f>}$]
d.Matrix IP $[_{IP}$ Zhangsan $_{<\theta k+\theta i>}$ $[_{VP}$ zi-yiwei $[_{IP}$ [tianfuguoren   ]]$_{<\theta f>}$]]

3.

	ECM	Dative construction	Productivity	Reflexive Nominal
Lexicon Language(R&S)	no	no	no	yes
Syntax language (R&S)	yes	yes	yes	no
Chinese refelxive *zi*-verbs	yes	no	not really	no

Another issue is why only a subset of Agentive ([+c+m]) and Sentient ([+m]) verbs can be reflexivized by *zi* in Chinese.The reason is bundling needs both an obligatory external theta role, which means a [+] theta cluster, and an animate realization of the two roles which will be bundled together. And only a subset of Agentive ([+c+m]) and Sentient ([+m]) verbs in Chinese can satisfy both these two requirements.