

How Subjective Is the Subject?

A Fresh Look at Grammatical Relations in Mandarin Chinese

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Abstract This article re-examines the issue of grammatical relations in Mandarin Chinese in light of the results of recent large-scale typological research on grammatical relations (henceforth GRs) worldwide. Specifically, it discusses three syntactic operations and constructions that are cross-linguistically relevant to the definition of grammatical relations, namely relativisation, reflexivisation, and quantifier float. The study adopts a strictly language-internal typological approach and avails itself of natural linguistic data or sentences sanity-checked by native speakers. The aim of this paper is twofold: first, it explores the hypothesis that, in line with various other languages, GRs in Mandarin Chinese are construction-specific. Second, it proposes an alternative approach capable of explaining the conflicting evidence often pointed out in the literature on GRs and subjecthood in Mandarin Chinese.

Summary 1 Introduction. –2 Methodology and Theoretical Framework. –3 Mandarin Chinese: the Terms of the Debate. – 4 Grammatical Relations in Mandarin Chinese. – 4.1 Relativisation Site. – 4.2 Reflexivisation. – 4.3 Floating and Quantifier Float. – 5 Conclusions.

Keywords Grammatical relations. Mandarin Chinese. Argument selectors. Reflexivisation. Quantifier float.

1 Introduction

Grammatical notions like those of subject and object are among the most basic concepts of many models of grammar: as Witzlack-Makarevich and Bickel (2013, 1) note, they are, either explicitly or implicitly, often regarded as universal, and belong to the fundamental concepts in descriptions of most languages. Mandarin Chinese is no exception: in the literature, it is often described in terms of subject and object, which seem to effectively account for a number of patterns and constructions and enable Mandarin Chinese to be comparatively investigated with respect to other languages. However, on closer examination, these notions have notoriously proven to

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display descriptive inconsistencies, which have been frequently highlighted and debated in the literature. As a result, it has been argued that the notion of subject plays a less significant role in Mandarin Chinese grammar compared, for example, to that of topic (Chao 1968; Li, Thompson 1976; Tsao 1979, 1990 and subsequent literature).

On the other hand, research on non-Indo-European languages has shown that not all languages share the same grammatical notions, as they may employ different strategies in meaning encoding. Subjects in different languages have been shown to display different morphological and syntactic properties (cf. Keenan 1976). Moreover, over the past three decades the range of syntactic properties that identify GRs in particular languages has greatly expanded. Extensive typological databases and refined statistical methods and tools have allowed large-scale, cross-linguistic research on grammatical relations (henceforth GRs), their typological distributions, and their properties (with a particular focus on subject properties). As a result, the universality of subject as a cross-linguistic feature of languages has been questioned, and some scholars hold the view that “GRs hold in constructions and not in languages” (Bickel 2011, 399).

With respect to Mandarin Chinese, despite the significant amount of literature on the notion of subject (especially in comparison to that of topic), the nature of GRs remains rather unclear. Specifically, little attention has been paid to the methodological and theoretical motivations underlying the apparent conflicting evidence displayed by subjecthood tests. No complete systematic analysis of GR-sensitive constructions has been carried out for Mandarin Chinese in light of the latest typological cross-linguistic research on GRs. Moreover, much uncertainty still exists about the relation between the grammatical notion of subject and the semantic notion of agent (or the most prominent argument in the verb's argument structure), and to my knowledge, no viable definition of subject has been provided so far that does not hinge on theory-internal assumptions.

The present study re-examines the long-debated issue of grammatical relations and subjecthood in Mandarin Chinese in light of recent typological research on grammatical relations. Specifically, it explores the hypothesis that, just as in several other languages, GRs could be construction-specific. The methodology of this study was adopted from the project on GRs outlined by Bickel (2011) and Witzlack-Makarevich and Bickel (2013) and involves a systematic investigation of a range of GR-sensitive constructions (or argument selectors), which will be presented in section 2. Because of space constraints, this paper presents and discusses three such constructions, namely relativisation, reflexivisation, and quantifier float, which display interesting differences with respect to the restrictions of the arguments (and non-arguments) they select. As

will be demonstrated throughout the discussion, this approach also sheds light on the motivations underlying the conflicting evidence often pointed out in the literature on GRs and subjecthood in Mandarin Chinese.

The paper is organised as follows. Section 2 introduces the methodological framework for the present investigation, along with the constructions/argument selectors that are cross-linguistically sensitive to GRs. Section 3 briefly presents some of the issues and terms of the debate on subjecthood and grammatical relations in Mandarin Chinese (MC) and explains them in light of the approach adopted in the present study. Section 4 and its subsections are devoted to discussing relativisation, reflexivisation, and quantifier floating as potential GR-sensitive constructions in Mandarin Chinese. Section 5 summarises the conclusions.

2 Methodology and Theoretical Framework

The term grammatical (or syntactic) relations captures how the arguments of a predicative element, usually a verb, are integrated and mapped into the syntactic structure of the sentence, either as subjects or (direct/indirect) objects. Until the 1970s, overt formal criteria, mainly morphosyntactic markers, were employed as unequivocal tests to detect subjects and GRs. These include:

- i. Indexation/agreement (e.g. Italian, and Spanish);
- ii. Flagger/case (e.g. Latin, Russian, and German);
- iii. Verb cross-reference (e.g. Enga, Trans-New Guinea, and Papua New Guinea);
- iv. Fixed position or relative order in the sentence (e.g. fairly rigid SVO order in English).

However, research on non-Indo-European languages in the 1970s provided compelling evidence against the universal viability of overt morphological criteria to identify grammatical relations, such as in languages exhibiting ergative alignment like Dyirbal (Dixon 1972) or Chukchi (Comrie 1978) and in Philippine-type languages (Schachter 1976). As a result, the inventory of GR tests was extended beyond morphological marking and word order, and comprised an array of 'covert subjecthood tests', also 'called subject-object asymmetry tests', namely syntactic processes and behavioural properties (cf. Keenan 1976) that can detect GRs in a language. These include (but are not limited to):

1. Relativisation
2. Reflexivisation
3. Passivisation
4. Topic extraction
5. Equi-NP deletion

6. Floating
7. Finiteness
8. Control
9. Raising

The basic assumption underlying this approach is that subjecthood can be seen as a prototypical notion (Rosch 1983): subjects in various languages display a greater or smaller set of subject properties, resulting in more or less prototypical subjects (Keenan 1976). However, in some languages different constructions and tests provided conflicting evidence: in Nepalese, for example, agreement and case are triggered by different nominals (Bickel 2011, 400). In such cases, the common approach was to pick out one or a small set of particular construction(s) that provided evidence for identifying GRs similar to those in Indo-European languages. However, this approach was criticised as suffering from 'methodological opportunism', employing

language-specific criteria when the general criteria do not exist in the language, or when the general criteria give the 'wrong' results according to one's theory. (Croft 2001, 30)

The alternative adopted by a number of typologists (Foley, Van Valin 1984; Comrie 1978; Moravcsik 1978; Van Valin 1981, 2005; Croft 2001; Bickel 2011, among others) involves treating GRs as construction-specific, looking at all the behavioural and formal properties of GRs in a language

without prioritising among them" in that they "do not necessarily identify a single set of grammatical relations [but]...[i]nstead, every single construction can, in principle, establish a different grammatical relation. (Witzlack-Makarevich, Bickel 2013, 2)

The notion of GR is then reconceptualised as

the syntactic relation that an argument bears to a specific construction or rule rather than to the clause in which the argument is realised. (Bickel 2011, 401)

In light of the excursus provided so far, the present work re-examines the issue of grammatical relations and subjecthood in Mandarin Chinese, and does so by adopting the typological, construction-centred approach developed by Witzlack-Makarevich and Bickel (2013) to explore language-specific grammatical relations cross-linguistically. This framework aims at providing a toolkit for comparing GRs across constructions in a single language as well as across languages. According to this approach, GR-sensitive constructions are defined also as 'argument selectors':

argument selectors refer to any morphosyntactic structure, process, rule, constraint or construction that selects a subset of arguments (and possibly non-arguments) and treats them differently from other arguments (or non-arguments) of the clause. (Witzlack-Makarevich, Bickel 2013)

In order to qualify as an argument selector in a language, a particular morphosyntactic structure, process, or rule must display a specific constraint as to which arguments it applies to. In other words, they need to single out restricted neutralisations among arguments (and adjuncts in some cases), identifying NPs

to which a particular grammatical process is sensitive, either as controller or target [controlled NP]. (Foley, Van Valin 1985, 305)

This paper presents part of the findings of the research I conducted on GR selectors in Mandarin Chinese. For space limitations, it will discuss only three of the above listed constructions/argument selectors: relativisation, reflexivisation, and quantifier float. The choice of these three selectors is motivated by the fact that the selection of arguments/non arguments, they are sensitive to, is based on completely different factors (semantic, discourse-related or none of the above). The analysis avails itself of either natural language data or sentences that have been cross-validated with native speakers. For this purpose, novel examples are mostly drawn from corpora of natural linguistic data (mainly the PKU corpus¹), or from other blogs or literature websites (URLs are provided for reference). Moreover, test-specific sentences, including those provided as evidence in the literature, have been submitted to a group of 37 native speakers all born in mainland China (with a sufficiently varied geographical distribution between Northern and Southern regions), educated to BA degree level or above, and 86.4% aged between 19 and 30 years. When discussing the feedback provided by native speakers, only statistically relevant data are reported, accounting for the fact that judgements may greatly vary among speakers, as sentences are mostly submitted without providing relevant context. In fact, context plays an essential role in the event participants' disambiguation processes; thus, variations in acceptability judgement by different speakers are very common. According to the feedback provided by the group, ambiguity (or the lack thereof) in the interpretation of roles (who does what to whom) is one of the main criteria affecting acceptability judgements. As Fan and Kuno (2013, 220-4) observe, given the same sentence:

1 The PKU Corpus is a corpus of Modern and Classical Chinese hosted by the Center for Chinese Linguistics, Peking University (<http://ccl.pku.edu.cn>).

[e]ven the same speaker might judge it sometimes acceptable, and other times marginal or awkward. This must be due to the differences among speakers in their ability to place the sentence in contexts [...], and to the differences in imagined contexts the same individual speaker places the sentence when they make acceptability judgements.

These aspects are taken into consideration when discussing the feedback provided by the group of native speakers.

3 Mandarin Chinese: the Terms of the Debate

The issue of grammatical relations and especially the notion of subject in Mandarin Chinese has received considerable critical attention since the 1950s. Grammatical notions, such as that of subject, have notoriously been the centre of a heated debate as Mandarin Chinese does not display subject- (or object-) specific morpho-syntactic encoding, such as indexation/agreement or flagging/case.

A considerable number of scholars have devoted attention to the issue of defining and identifying subjects in Mandarin Chinese. For reasons of space, this paper will not attempt to do justice to the wealth of literature on this topic.² However, broadly speaking, three positions are found in the literature:

- Mandarin Chinese does have a subject, but its role is less prominent than that of discourse notions, like topic (Li, Thompson 1976, 1981; Tsao 1979, 1990, among others);
- Mandarin Chinese does not have categories, such as subject or object (LaPolla 1990, 1993, among others), or it does have subjects, but the actual meaning of subject is topic (Chao 1968);
- Mandarin Chinese does have a subject, which is structurally important in every sentence (Li 1990; Huang, Li 1996; Her 1991; Tai 1997, among others).

However, the cross-linguistic research on GRs outlined in the previous section helps to clarify the motivations for the different positions held by linguists on GRs in Mandarin Chinese. Clearly, the difficulty with Mandarin Chinese has been the lack of those unequivocal, overt markers that identified GRs in Indo-European languages. Moreover, the different positions and analyses can be largely traced back to two major criteria that

² See Abbiati 1990 for a thorough review of the debate and comparison between different accounts.

have been used to define subjecthood:³ the positional criterion and the semantic criterion. (i) The positional criterion – the overt subjecthood test (see § 2, iv) – identifies the subject with a specific position in the sentence, namely the sentence-initial/preverbal slot (Chao 1968; Zhang 1952; Zhu 1982). (ii) The semantic criterion defines subject in terms of a privileged semantic relation between a NP and the main verb (Lu, Zhu [1951] 1979; Wang 1956, Li, Thompson 1981; Tang 1989): the subject is roughly the noun phrase that

has a ‘doing’ or ‘being’ relationship with the verb in that sentence. 1981, 87)⁴

In other words, the former criterion identifies the grammatical subject with the first NP (or the preverbal argument) in the sentence, the latter criterion identifies the subject with the semantic notion of agent, or with the most prominent argument in the verb’s argument structure.

However, as pointed out in the literature, both criteria evidently fail to account for all word order patterns and constructions. We will briefly summarise the reasons below:

(i) The positional criterion does not account for the fact that the first position in the sentence in Mandarin Chinese (as in many other languages) is also connected with information structure aspects, such as topichood, givenness, and frame-setting (in the sense of Chafe 1976). Moreover, as a syntactic notion, the syntactic (grammatical) subject needs to be distinguished from the first NP in a sentence (‘topic’/‘theme’/‘psychological subject’) because the latter does not necessarily bear a selectional relationship with the verb and is more related to information structure and discourse progression. Both issues have extensively been discussed in the literature (Abbiati 1990); thus, we will only briefly consider examples highlighting issues related to positional definitions of subject, as the NP that occurs either in the sentence-initial position or in the preverbal position. Consider

3 In some theoretical frameworks, the notions of subject and object are considered as basic/primitive or derived from structural configurations. For example, Lexical Functional Grammar (LFG) regards GRs as syntactic primitives belonging to the F-Structure. Within Government and Binding (GB) and related theories, the subject is structurally defined as a specific node in the formal representation of the sentence (e.g. SpecIP) and is thus (unlike objects) an external argument of the verb (in the minimalist framework subjects are connected with a set of interpretable EPP- [Extended Projection Principle] or phi-features). The approach adopted in the present study and in the project outlined by Witzlack-Makarevich and Bickel (2013), on the other hand, seeks to investigate GRs as language – internal rather than theory – internal, primitive or derived notions.

4 Li and Thompson (1981, 15) further specify that “the subject must always have a direct semantic relationship with the verb as the one what performs the action or exists in the state named by the verb”.

the following sentences from Abbiati 1990:⁵

- 1 曹禺₁ (啊) , 我 认识 (他₁ / 这个人₁) 。
Cáo yú (a) wǒ rènshi (tā / zhè ge rén)
Caoyu TM [4] 1SG know 3SG/this CL person
'Caoyu, I know him.'
- 2 去年, 我 买了 新车。
qùnián wǒ mǎi le xīn chē
last year 1SG buy PFV new car
'Last year I bought a new car.'
- 3 曹禺 记性 非常好。
Cáo yú jìxìng fēicháng hǎo
Caoyu memory very good
'Caoyu has a very good memory.' (Lit. 'Caoyu, [his] memory is very good.')

In (1), the first NP is coreferential with the patient (and possibly the object) of the verb *rènshi* 'know' (whereas the potential subject would be *wǒ* 'I', like in the English counterpart). In (2), it is a temporal expression and not an argument of the verb *mǎi* 'buy.' In (3), a so-called 'double-subject' construction, it is not a verbal argument either and only bears a relevance relation with the immediately preverbal NP *jìxìng* 'memory': in this sense, the NP functions as a *frame-setter* in the sense used by Chafe (1976), namely the topic specifies the frame of validity of the following predication. In none of the above sentences does the first NP qualify as a potential subject in that it is not even an argument of the verb.

A further tentative hypothesis involves defining the subject as the argument that occurs preverbally with transitive verbs.⁶ However, this definition is challenged by statistical data on most frequent sentence patterns and preferred argument structure (PAS) in Mandarin Chinese. Statistical

5 In the present article, the Leipzig glossing rules are adopted (available at <https://www.eva.mpg.de/lingua/pdf/Glossing-Rules.pdf>); other/different abbreviations include: BEI - 被 marker; DE - 的 modification marker; EXP - 过 experiential aspect marker.

6 A similar hypothesis is clearly not possible for intransitives, as many unaccusative verbs of existence, (dis)appearance, as well as several motion verbs allow their sole argument to occur either pre-verbally or post-verbally, depending on information status considerations. Li and Thompson's (1981, 20) well known example illustrated this pattern: 来了人了 [arrive PFV person MOD] "Some person(s) has/have arrived" (Li, Thompson 1981, 20), where the sole argument of the verb occurs post-verbally in that it is indefinite, cognitively new/inactive, focal information. Cf. Basciano (2010) for a detailed discussion on unaccusative verbs and inversions in Mandarin Chinese.

research conducted by Tao and Thompson⁷ (1994) on conversations and by Lin (2009) on narratives and written texts show that most sentences in MC display only one overt argument, regardless of the valency of the verb, which can be either intransitive or transitive. As a consequence, most transitive sentences display a structure like [XP V], where the XP can be either of the arguments of a transitive verb (Tao 1996). Thus, problems arise, for example, with sentences displaying a transitive verb requiring agentive, volitional actors, and a single + animate, +volitional noun occurring preverbally, which is semantically compatible with the verb. This is a well-known example by Chao (1968):

- 4 鸡 不吃了。
 jī bú chī le
 chicken NEG eat MOD
i 'I/you...they don't eat chicken anymore.'
ii 'The chickens are not eating anymore.'

(4) displays a NP-V pattern, with *jī* 'chicken' being the only preverbal NP. However, the position of the NP does not mark its semantic or syntactic role in the sentence (agent/subject vs. patient/object). Two interpretations are possible depending on the context: in (i) *jī* 'chicken' is the patient of the verb *chī* 'eat' (and possibly, the object of the sentence), while in (ii) it is the agent (and thus a possible subject). Similar considerations hold for the following example:

- 5 这次探访, 该见的人 没见着。 (He, to appear)
 zhè cì tàn fǎng gāi jiàn de rén méi jiàn zhao
 this CL visit should see DE person NEG see.succeed
 'As for this visit, (I/we/...) did not meet the person (I/we/...) was/were supposed to meet.'

The preverbal NP *gāi jiàn de rén* 'the person (somebody) had to meet' can be either of the arguments of the transitive verb *jiàn* 'see, meet,' i.e. the 'seer' or the 'seen'. In the first case, 'the person who was supposed to meet (X) did not meet him/her', in the second case, 'X did not meet the person he/she was supposed to meet'. Crucially, it is only by virtue of world

⁷ In Tao and Thompson's (1994) statistical analysis of naturally occurring conversation, 61% of transitive clauses contained only one overt argument, while only 19% of transitive clauses had two overt arguments. Moreover, "while transitives tend to reduce the number of arguments that are fully specified, the majority of non-transitives sustain the lexical coding of the one argument associated with them" (19).

knowledge and contextual cues that native speakers disambiguate it as the second argument in that this sentence is more likely to be uttered by the one who failed to meet the person in question.

(ii) The semantic criterion, on the other hand, is clearly related to the notion of agenthood or semantic prominence since it defines the subject in MC as the noun phrase that has a 'doing' or 'being' relationship with the verb in the sentence: in short, the subject is the most prominent or agent - like argument in the verb's argument structure. This bears similarities with the notions of generalised roles, namely macro-roles - i.e. actor and undergoer (Foley, Van Valin 1984; Van Valin, LaPolla 1997; Van Valin 2005) and proto-roles - i.e. proto - agent and proto - patient (Dowty 1991; Primus 1999). However, the 'grammatical subject' by definition needs to be distinguished from the 'logical subject' or the generalised role of actor/ proto - agent:

What is crucial about the traditional notion of GRs is (a) that they are identified by syntactic properties, and (b) that they relate an argument to the clause; [more specifically, they capture] how this argument is integrated syntactically into a clause. (Bickel 2011, 399)

Semantic roles and syntactic relations are separate notions; this captures the fact that, cross-linguistically, several semantic roles (including patients) can occur in the subject position, just like in passive diathesis, when patients (undergoers) are promoted to subjects and agents (actors) are demoted to obliques. If the subject were always to coincide with the agent/actor/most-prominent verbal argument, there is no need to postulate another purely syntactic (and non-semantic) category. To sum up, if subjects had to be defined with either criteria (positional or semantic), we would need to rule out the existence of a 'grammatical subject' and only use notions, such as 'psychological subject' (topic) or 'logical subject' (agent/most prominent argument).

Again, the terms of the debate revolved around criteria which evidently failed in that, due to the typological characteristics of the language, overt tests do not apply to Mandarin Chinese. However, a look at covert, behavioural properties of GRs provides different insights. Scholars like LaPolla (1990, 1993) and Bisang (2006) conducted research on this; however, they came to different conclusions.

LaPolla (1990, 1993) examines an array of tests, including cross-clause coreference, relativisation reflexivisation, indispensability, comparatives, clefting, raising, and reflexives. He concludes that no viable notion of subject or object exists in Mandarin Chinese. Bisang (2006) also examines a range of tests, concluding, however, that there are subject-object asymmetries (although with some reservations) in the following constructions: raising, reflexives, passives, and topic extraction (2006, 334). He observes

that Chinese displays “low-profile syntax with lack of subject/object asymmetry in some constructions” (2006, 331). Nonetheless, he argues that such constructions constitute enough evidence to postulate the existence of a grammatical notion of subject in Mandarin Chinese.

However, some of the arguments provided both by LaPolla (1990, 1993) and Bisang (2006) appear to be not clear-cut enough and need re-examination, as highlighted by the fact that they provide conflicting evidence with respect to the same tests. Moreover, the approach they adopt is similar to the one discussed in the section above, and involves picking out a set of particular constructions that confirm (or deny) the existence of a grammatical category similar to those of Indo-European languages.

The present analysis will not discuss further the terms of the above debate. Instead, it seeks to investigate grammatical relations with a fresh look, in light of recent large-scale, cross-linguistic typological research (Bickel 2011; Witzlack-Makarevich, Bickel 2013) with the aim of establishing if and to what extent grammatical relations are necessary in the description of the sentence in Mandarin Chinese.

4 Grammatical Relations in Mandarin Chinese

In what follows, three of the above listed GR-sensitive constructions will be discussed, namely relativisation site (§ 4.1), reflexivisation (§ 4.2), and quantifier float (§ 4.3).

4.1 Relativisation Site

One type of process that varies strongly in terms of GR specifications across languages is relativisation. This process turns a propositional expression into a referential one, and the referent is chosen among the arguments and adjuncts of the clause (Bickel 2011, 428). According to Keenan and Comrie (1977), there exists a hierarchy of accessibility to relativisation in terms of grammatical categories, namely: S**U**bject>D**I**rect O**B**ject>I**N**direct O**B**ject>O**B**Lique>G**E**Nitive>O**B**ject C**O**M**P**plement. Constraints on relativisation displayed by different NPs in a sentence are significant with respect to GR individuation: if a language allows only a single argument in a clause to be relativised upon, that argument is the subject of the clause, as in Malagasy (Keenan 1976, 320).

In Mandarin Chinese, the following examples show that it is possible to relativise not only on the agent, but also on the patient NP (6), on a goal/benefactive NP (7), on locative NPs (8), (9.a), and possibly on a ‘reason adjunct’ NP (9.b) (Cheng, Sybesma 2006, 70). Please also note that both pre-verbal and post-verbal NPs can be relativised upon:

To sum up, all examples above show that relativisation processes in Mandarin Chinese are independent of the argument structure of the verb in the relative clause; thus, relativisation is not an argument selector process, nor is it restricted to argumenthood (as adjuncts can also be relativised upon). Hence, it shows no evidence of the existence of specific grammatical relations.

4.2 Reflexivisation

Reflexivisation processes are generally connected to subjecthood since grammatical subjects have been shown in many languages to control reflexives in terms of reference as for example in Hindi (Mohanan 1994), Malayam (Mohanan 1982), Urdu (Butt 1995), Malagasy, German, and Japanese (Keenan 1976, among others).

Mandarin Chinese reflexives also appear to be controlled by a potential subject, which is a claim made by several scholars including Li (1990), Tang (1989), Huang C.-T. (1991), Tai (1997), Bisang (2006), and others. This seems to be the case in this example from Huang Y. (1994, 77):

- 12 小名₁ 给 小花₂ 自己₁的 画。
 Xiǎomíng gěi Xiǎohuā zìjǐ de huà
 Xiaoming give Xiaohua REFL DE painting
 'Xiaoming₁ gave Xiaohua₂ his₁ painting.'

According to Huang Y. (1994), in (12) the only possible antecedent of *zìjǐ* is Xiaoming, who is the agent (and potentially the subject) of the sentence. This is confirmed by native speakers' intuition (fewer than 5% said that the antecedent could be both Xiaoming and Xiaohua).

However, on closer examination, reflexivisation in Mandarin Chinese appears to display some peculiarities. First, unlike English or Italian, it is sensitive to semantic constraints like animacy as (13) and (14) show:

- 13 * 热水瓶 打破了 自己。
 * rèshuǐpíng dǎpò le zìjǐ
 flask break PFV REFL
 'The flask broke itself.'
- 14 那种按摩₁ 让他₂ 恢复了 自己₂的 精神。
 nà zhǒng ànmó ràng tā huīfù le zìjǐ de jīngshén
 that CL massage let 1SG recover PFV REFL DE energy
 'That massage₁ let him₂ get his₂ energy back.'

Sentence (13) from Huang Y. (1994, 77) is ungrammatical as the intended antecedent is an inanimate noun, and this was confirmed by 100% of native speakers. Sentence (14) displays two possible antecedents: the first NP *ànmó* ‘massage’, which is the first argument of the verb *ràng* ‘make, let’, and *tā* ‘he’, the first argument of the verb *huìfù*, ‘recover.’ However, the first NP is inanimate (and logically not related to *zìjǐ*), and thus the second NP (*tā*) is the only possible antecedent of the reflexive.

Sensitivity to semantic features does not stop with animacy as the following example by Huang Y. (1994, 183) shows:

- | | | | | | | |
|----|---|--|----------------------|--|------------------------|--|
| 15 | a | 王先生 ₁
Wáng xiānsheng
Wang Mr | 希望
xīwàng
hope | 许小姐 ₂
Xǔ xiǎojiě
Xu Miss | 嫁给
jià gěi
marry | 自己 ₁ 。
zìjǐ
REFL |
| | | ‘Mr Wang ₁ hopes that Miss Xu ₂ will marry him ₁ .’ | | | | |
| | b | 许小姐 ₁
Xǔ xiǎojiě
Xu Miss ₁ | 希望
xīwàng
hope | 王先生 ₂
Wáng xiānshēng
Wang Mr ₂ | 娶
qǔ
marry | 自己 ₁ 。
zìjǐ
REFL ₁ |
| | | ‘Miss Xu ₁ hopes that Mr Wang ₂ will marry her ₁ .’ | | | | |

Sentences in (15) are an example of the possibility *zìjǐ* exhibits of having a long-distance antecedent (Huang C.-T. 1991; Huang Y. 1994) that can be retrieved both locally (within the clause where *zìjǐ* occurs) and non-locally (in the matrix clause). Both (15.a) and (15.b) display two animate NPs (Mr Wang and Miss Xu). Note that (15.a-b) differ with respect to the verb in the embedded clause, but display no structural (syntactic) differences. Hence, the disambiguation of *zìjǐ* is, by virtue of the semantic features, required by the two different verbs in addition to conventional knowledge about marriage. The verb *jià* ‘marry’ requires a female agent and a male patient, while the verb *qǔ* ‘marry’ requires a male agent and a female patient. Accordingly, Mr Wang and Miss Xu are chosen as the preferred referent for (15.a) and (15.b) respectively.⁹

Moreover, Huang Y. (1994, 190) shows that *zìjǐ* is also flexible in terms of the relative order with respect to its referent: in (16) both nouns (*māmā* ‘mum’ and Xiaoming) are possible antecedents for *zìjǐ*, although Xiaoming occurs after the reflexive:

9 Huang Y. provides an account of reflexive disambiguation in light of the Gricean principles of conversational implicature. Cf. Huang Y. (1994, 183) for further discussion.

16	妈妈 ₁	表扬了	自己 _{1/2}	使	小明 ₂	很高兴。
	māma	biǎoyáng le	zìjǐ	shǐ	Xiǎomíng	hěn gāoxìng
	mum	praise PFV	REFL	make	Xiaoming	very happy
	'That mum ₁ praised him ₂ /herself ₁ makes Xiaoming ₂ very happy.'					

This example was checked against native speakers' judgement: with no context provided, half of native speakers thought *zìjǐ* refers to *māmā* 'mum'; however, 41.7% interestingly thought that Xiaoming is a more likely antecedent since it is logically more likely that a son is happy if his mother praises him rather than herself. This rules out a control account of *zìjǐ* based on strict linear precedence as well as on c-command (cf. Huang Y. 1994 for further discussion on this point). Native speakers stressed the fact that context that allows disambiguation of *zìjǐ* is required, which suggests that context and pragmatic inference play crucial roles in *zìjǐ* disambiguation. This is further demonstrated in the following sentence pair:

17	a	陈先生 ₁	认为	刘先生 ₂	太狂妄，	总是看不起	自己 ₁ 。
		Chén xiānsheng	rènwéi	Liú xiānsheng	tài kuángwàng	zǒng shì kànbùqǐ	zìjǐ
		Chen Mr.	think	Liu Mr.	too arrogant	always look.down.upon	REFL
		'Mr. Chen ₁ thinks that Mr. Liu ₂ is too arrogant, and (he ₂) always looks down upon him ₁ .'					
	b	陈先生 ₁	认为	刘先生 ₂	太自卑，	总是看不起	自己 ₂ 。
		Chén xiānsheng	rènwéi	Liú xiānsheng	tài zìbēi	zǒng shì kànbùqǐ	zìjǐ
		Chen Mr.	think	Liu Mr.	too self.abased	always look.down.upon	REFL
		'Mr. Chen ₁ thinks that Mr. Liu ₂ is too self-critical, and (he ₂) always looks down upon himself ₂ .'					

Sentences (17.a) and (17.b) provide evidence against the viability of a purely semantic or syntactic account of reflexivisation in Mandarin Chinese. The two sentences are identical except for the attributive verb describing Mr. Liu, namely *kuángwàng* 'arrogant' in (17.a) and *zìbēi* 'self-critical' in (17.b). The reflexive can potentially refer to the first argument of both predicates — Mr. Chen for *rènwéi* 'think' in both sentences, and Mr. Liu for *kuángwàng* 'arrogant' in (17.a), and for *zìbēi* 'self-critical' in (17.b). Crucially, only the contextual information provided by the first clause in each sentence, and not syntactic constraints (e.g. the locality constraint), can reveal the logically most likely choice for the antecedent of *zìjǐ*, which is Mr. Chen in (17.a) and Mr. Liu in (17.b).

To sum up, the examples above suggest that (i) semantic constraints (like animacy and other semantic features), role prominence in the argument structure, (ii) pragmatic/contextual factors, world knowledge, and inference processes, all play an important role in antecedent disambiguation, whereas precedence is not an absolute constraint. Nevertheless, a syntactic account in terms of subject control is not ruled out since, in all

the sentences above, the antecedent is still the most prominent argument (and possibly the subject) of one of the verbs in either the matrix or the embedded clauses. However, let us further consider the following examples from Xu (1994):

- | | | | | | |
|----|---|--|------------|----------|-------------------|
| 18 | a | 李先生 ₁ 的 | 阴谋 | 害了 | 自己 ₁ 。 |
| | | Lǐ xiānsheng de | yīnmóu | hài le | zìjǐ |
| | | Li Mr. DE | conspiracy | harm PFV | REFL |
| | | ‘Mr. Li ₁ ’s conspiracy did harm to him ₁ .’ | | | |
| | b | 李先生 ₁ 的 | 傲慢 | 害了 | 自己 ₁ 。 |
| | | Lǐ xiānsheng de | àomàn | hài le | zìjǐ |
| | | Li Mr. DE | arrogance | harm PFV | REFL |
| | | ‘Mr. Li ₁ ’s arrogance did harm to him ₁ .’ | | | |

In both sentences (18.a-b) the first verbal argument (and potential subject) is an inanimate external causer (i.e. *yīnmóu* ‘conspiracy’, and *àomàn* ‘arrogance’, respectively) modified by an animate noun (*Lǐ xiānsheng*, Mr. Li). The two sentences display a parallel structure: [NP(+animate) DE] NP (-animate) V REFL. However, in both cases, the antecedent of *zìjǐ* is not the head of each sentence-initial NP (*yīnmóu* ‘conspiracy’ in [18.a] and *àomàn* ‘arrogance’ in [18.b]), but the modifier of the head, i.e. *Lǐ xiānsheng* ‘Mr. Li’. This interpretation is confirmed by 100% of surveyed native speakers.¹⁰ Hence, the first verbal arguments of both sentences, which would also qualify as the syntactic subject, fail to be antecedents of *zìjǐ*.¹¹

Let us consider two further examples: (19) is from Pan ([1997] 2013, 20) and (20) is from LaPolla (1993, 779):

- | | | | | | | |
|----|---|-------|-----------------|---------------------|-------|-------------------|
| 19 | 无情的实事实 ₁ | 告诉 | 张三 ₂ | 自己 _{1,2} 的 | 计划 | 行不通。 |
| | wúqíng de shíshì | gàosù | Zhāngsān | zìjǐ de | jìhuà | xíng bù tōng |
| | harsh DE fact | tell | Zhangsan | REFL DE | plan | carry NEG through |
| | ‘The harsh reality ₁ tells Zhangsan ₂ that his _{1,2} plan won’t work.’ | | | | | |

10 In fact, 4% native speakers also pointed out that the antecedent of *zìjǐ* might as well be some other person, depending on the context. For example, it could be the speaker uttering the sentence with the following sense: ‘Mr. Li’s arrogance/conspiracy harmed me’ (or him or someone else).

11 In trying to deal with this inconsistency, Xu (1994) advocates for what he defines as a semantic constraint to justify a syntactic dependency: according to him, Li is an agent or indirect agent in semantic terms (i.e., a person who plots a conspiracy) and thus is a possible antecedent. Although this explanation does not seem consistent with respect to a syntactic account of *zìjǐ*, it is significant since it reveals a meaning-driven disambiguation process that is sensitive to the structure of the described event and not to the syntactic structure of the sentence itself.

20	有人 ₁ yǒu rén exist person	来警告 lái jǐnggào come warn	朱老板 ₂ Zhū lǎobǎn Boss Zhu	说 shuō say	自己 ₂ 的儿子 zìjǐ de érzi REFL DE SON	在偷东西。 zài tōu dōngxī PROG steal thing
----	--	---------------------------------	--	------------------	--	---

‘Someone came to warn Boss Zhu₁ that his₁ son was stealing things.’

In (19), the only possible antecedent of *zìjǐ* is *Zhangsan*, that is the second argument of the verb *gàosu* ‘tell’, in that its first argument (and the possible subject) is inanimate (*wúqíng de shíshì*, ‘the harsh reality’) and is also a logically impossible antecedent for *zìjǐ*. About 60% of native speakers thought this sentence was acceptable and comprehensible and 100% agreed that *Zhangsan* is the only possible antecedent for *zìjǐ*. This shows that semantic constraints, such as animacy, are ranked at the highest level of restrictions for *zìjǐ*. This also counts as evidence against subject control of reflexivisation in that *Zhangsan* would be the ‘indirect object’ (and not the subject) of the verb *gàosu* ‘tell.’ A further significant example is (20), where two animate NPs are available: according to LaPolla (1993, 779), the antecedent of *zìjǐ* ‘self’ is *Zhū lǎobǎn*, ‘boss Zhu’, which is neither a possible subject nor the agent/actor of any of the predicates in the complex sentence, but rather the second argument of the ditransitive verb *jǐnggào*, ‘to warn.’ Half of surveyed native speakers thought that the sentence is rather ambiguous when no other contextual cues are provided.¹² 2.2% thought that the antecedent of *zìjǐ* is (*yǒu*) *rén* ‘someone’, referring to the first (indefinite) NP, which is actually the agent of the predicate *lái jǐnggào* ‘come to warn.’ However, crucially, 21.6% interpreted it as being coreferential with *Zhū lǎobǎn* ‘boss Zhu’ and the remaining thought that both NPs were possible antecedents (although preferring the agent ‘someone’). Again, it should be noted that *Zhū lǎobǎn* ‘boss Zhu’ would be the indirect object, and not the subject, of the verb *jǐnggào*, ‘to warn.’ According to some speakers, the first NP ‘someone’, although animate and agentive, is generic/not known/not recoverable and is perceived as a less plausible antecedent for *zìjǐ*, thus *zìjǐ* is interpreted as coreferential with Boss Zhu. This is another example of disambiguation through inference processes based on pragmatic considerations and shows that when no relevant contextual cues are provided, the ambiguity still holds in clauses with two animate NPs, regardless of their semantic/syntactic role in the sentence.

¹² When context is provided, however, it plays a crucial role in the disambiguation of *zìjǐ* in a sentence like (20). For example, in his Ph.D. thesis, LaPolla (1990, 48-9) better clarifies this example by providing two different contexts for this sentence. As a consequence, *zìjǐ* clearly receives different antecedent interpretations: “In the two examples, *zìjǐ* refers to either Lao Wang [a] or Lao Zhang [b] because it is known from the respective preceding contexts whose son is doing the stealing” (LaPolla 1990, 48-9). Cf. LaPolla 1990 for discussion.

A further argument raised by linguists to prove a subject control of *zìjǐ* is that only the subject of a BEI sentence controls reflexivisation. According to Li (1990)

the fact that the initial NP in the BEI construction can trigger reflexivisation shows that the initial NP is the subject of the BEI construction. (155)

However, counterexamples to this claim are provided by Pan ([1997] 2013, 84): in (21), *zìjǐ* can refer both to John and Bill (this is confirmed by surveyed native speakers). Similarly, example (22) by Huang C.-T. (1999, 7) also shows that *zìjǐ* is controlled by the NP occurring after BEI (Lisi), namely the only animate NP.

- 21 John₁ 被Bill₂ 敢进了 自己_{1/2}的 房间。
John bèi Bill gǎnjìn le zìjǐ de fángjiān
 John BEI Bill banish-enter PFV REFL DE room
 ‘John₁ was banished by Bill₂ to his_{1/2} room (either John’s or Bill’s room).’
- 22 那一封信₁ 被李四₂ 带回 自己_{1/2}的家 去了。
nà yì fēng xìn bèi Lǐsì dài huí zìjǐ de jiā qù le
 that one CL letter BEI Lisi bring-back REFL DE home go PFV
 ‘That letter₁ was brought back to self₂’s (Lisi’s) home by Lisi₂.’

We can summarise what the above sentences show as follows:

1. An animacy constraint applies to all antecedents of *zìjǐ* (sentences 12 to 22). In addition, other meaning-related restrictions and contextual cues play a significant role in coreference disambiguation (sentences 14 to 22).
2. Most antecedents are the highest animate NP in the thematic hierarchy of one of the verbs in the sentence (both in the matrix and in embedded clauses, allowing for long-distance bound reflexives); however, *zìjǐ* can also refer to other (less agentive) verbal arguments such as goals/benefactives/affectees (sentences 19, 20, 21).
3. In some cases, such as when no animate NPs are available among core arguments, any animate participant logically interpreted as having a role in the event described can be a potential antecedent, regardless of its linguistic encoding. In sentences like (18.a-b), the antecedent of *zìjǐ* is the actual event participant performing the action of being arrogant or organising a conspiracy, although such a participant is linguistically encoded as an NP modifier and not as a core argument. Along the same lines, the antecedent of *zìjǐ* in (19) is also an active participant in the event described. In this specific case, a noun (i.e. *jìhuà* ‘plan’) instead of a verb suggests the role of

the antecedent of *ziji* (Zhangsan) in the event, i.e. the participant that actually made the plan ('his plan' = 'the plan he made').

If we were to make a generalisation, which holds for all the examined sentences, we might say that all antecedents of *ziji* do refer to some animate participants that play a role in the described event. These participants are likely to be (although not necessarily) explicitly encoded as core arguments of the chosen verbs in the sentence, but may as well be covertly implicated in the meaning of the sentence.

Observation and analysis of the above sentences rule out a purely syntactic (subject-related) control theory of reflexives¹³ as the controller NPs do not display restricted neutralisations of, nor are restricted to, verbal arguments. Rather, reflexivisation seems to be connected with the roles of participants in the event. Huang Y. (1994, 184) also concludes his chapter on reflexives claiming that a purely syntactic approach is not sufficient in specifying the domain or the set of possible antecedents for long-distance reflexives:

it is pragmatics that is responsible for determining the actual, preferred antecedent where there is more than one structurally possible antecedent. (184)

We can conclude that reflexivisation does not provide straightforward evidence for a grammatical relation of 'subject'.

4.3 Floating and Quantifier Float

Another construction that displays considerable typological variation with respect to GRs is described as 'floating', which refers to the possibility offered by some languages for a referential operator (e.g. a quantifier, a numeral, or an indefinite marker) to be launched and permitted to leave the NP over which it has scope (Bickel 2011, 430). In the following example, the subject launches the quantifier *all*, occurring in (47.b) after the auxiliary:

- 23 a All the children have seen this movie.
b The children have all seen this movie.

¹³ Amendments to the claim of a strict subject control of reflexives have been made by several linguists. For instance, Pan [1997] (2013, 21) holds that "non-subjects can be antecedents if there is a feature conflict between the subject and the reflexive, or if the predicate is one that implies non-coreference". Huang C-T.J. and Liu (2001, 6) also address "non-subjects which, in general, are not potential antecedents of *ziji*" but are in some cases controllers of reflexives.

Floating is relevant for GR identification in that the actual scope is often regulated by a GR, since the floated operator can only take NPs in its scope that bear a certain GR. As Schachter (1977) notes,

[t]erms of grammatical relations...are ranked in a hierarchy (SU>DO>IO), and 'structure-dependent' rules such as Quantifier Float can be restricted to apply to just part of the hierarchy. (286-7)

This property has been extensively studied in European languages: formal and typological research has found that it is cross-linguistically widespread and common, though not universal (Whaley 2001; Bobaljik 2003). Different languages vary in the syntactic positions that can host Q-float, for example, subjects, direct and indirect objects in French, subjects and direct objects in Japanese, and only subjects (and no objects) in English.¹⁴

Let us now turn to Mandarin Chinese. In the literature, there is some debate as to whether Quantifier Float is available or not. Jenks (2013) claims that the availability of Q-float is predictable in classifier languages depending on whether they display Quantifier-Noun order (e.g. Vietnamese, Chinese, Hmong-Mien, North and Central Tai) or Noun-Quantifier order (e.g. Khmer, Tibeto-Burman, South-western Tai). According to Jenks, Chinese languages, displaying a Quantifier-Noun order, lack Q-float, the closest equivalent being a quantifier adverb 都 *dōu* 'all', which, however, must occur before the verb unlike *all* in (23.b):

24 三个人 都 吃了 一锅苹果派。
sān ge rén dōu chī le yì guō píngguǒ pài
three CL person all eat PFV one CL apple pie
'Three people each ate an apple pie.'

However, in the literature, sentences displaying a sentence-initial topic like (25) have also been analysed as instances of floating quantifiers. In sentence (25), the two verbal arguments are in the preverbal position and the floated quantifier may scope over either argument, allowing for two different interpretations of the same sentence. 60% of surveyed native speakers confirmed this and agreed that (25) has two interpretations (most of them thought the two NPs are equally possible with a slight preference towards the first reading, where the main topic/second argument launches the quantifier):

¹⁴ A floated quantifier in English cannot refer to the object, not even when the object is topical, such as for instance 'the movies' in a sentence like 'These movies, the children have all seen.'

object for *qù* 'go' in (25), or experiencer and theme/stimulus¹⁵ for *xǐhuān* 'like' in (26), are likely to be modified by *dōu* as long as they occur on its left.

Another instance of Q-float was observed in Mandarin Chinese (Wu 2010, 96) along the same lines as Japanese (Kobayashi, Yoshimoto 2001). In Mandarin Chinese, a numeral quantifier modifying a noun is always followed by a classifier (CL). The classifier indicates the semantic category the quantified nominal belongs to (or specifies the unit of measurement for a mass noun). Given that numeral quantifiers + classifiers can be used as noun modifiers when immediately placed before the NP they modify, as in (28.a), sentences like (28.b) have been regarded as instances of quantifier floating, since the numeral quantifiers are separated rightwards from the NP they modify.

- | | | | | | |
|----|---|--|----------------|----------------|---------------|
| 28 | a | 小偷 | 偷走了 | [那三本] | 书。 |
| | | xiǎotōu | tōu zǒu le | nà sān běn | shū |
| | | thief | steal-walk PFV | that three CL | book |
| | | ‘The thief has stolen those three books.’ | | | |
| | b | 书, | 小偷 | 偷走了 | [那三本]。 |
| | | shū | xiǎotōu | tōu zǒu le | nà sān běn |
| | | book | thief | steal-walk PFV | that three CL |
| | | ‘Those books, the thief has stolen three of them.’ | | | |

The sentence-initial bare noun in (28.b) is the topic and sets the frame of validity for the following predication (Chafe 1976), bearing a partitive (type-token) relation with the post-verbal element (*nà sān běn* ‘those three’). Again, crucially, the launcher is the second argument of the verb, and not the potential subject of the sentence. This reading has been confirmed by almost 100% of native speakers. The same ‘whole-part’ or ‘type-token’ interpretation also holds for Japanese (from Kobayashi, Yoshimoto 2001, 46):

- | | | | | | |
|----|---|----------------------------------|------------------|--------------|-----------|
| 29 | a | John-ga | nizyuppezi-no | ronbun-wo | yonda. |
| | | John-NOM | twenty pages-GEN | paper-ACC | read-PAST |
| | | ‘John read a twenty page paper.’ | | | |
| | b | John-ga | ronbun-wo | nizyuppezi | yonda. |
| | | John-NOM | paper-ACC | twenty pages | read-PAST |

15 As Levin (1993) notes, *like* and the other admire-verbs are transitive psych-verbs with an experiencer as their first argument, whereas there are a variety of opinions as to the best characterisation of the ‘semantic role’ of their second argument: “the labels used include theme, target of emotion, stimulus, and subject matter”. (192)

The above examples show that quantifier floating is connected to positional (and not syntactic) criteria in that the first NPs in the sentence, regardless their semantic role (and thus syntactic function), can launch quantifiers. Thus, quantifier float is a reference-related process in the sense of Schachter (1977) or, in Bickel's (2011, 409) terms, it is related to referential properties of NP in that "the choice among arguments rests on referential properties alone". A similar phenomenon is observable in Tagalog, where the most topic-like nominal, marked by *ang=*, is the controller of several constructions, including conjunction reduction, relative constructions, and floated quantifiers.

5 Conclusions

This paper has examined three GR-sensitive constructions with respect to Mandarin Chinese. The first construction, relativisation, displays no restrictions as to what verbal arguments can be relativised upon. In addition, this process is not restricted to verbal arguments, and thus it fails to single out specific GRs. Reflexivisation is also not controlled by a potential grammatical subject; rather, it has shown to be a role-related process, sensitive to semantic constraints (like animacy and inherent semantic characteristics of the verb) and connected with the role of participants in the described event regardless of their linguistic encoding. Lastly, quantifier float also fails to detect a purely syntactic grammatical relations in that it is a reference-related process, controlled by whichever argument occurs as the topic of the sentence.

To sum up, none of the examined processes identifies a purely syntactic notion similar to that of subject; this confirms the construction-specific nature of GRs: the three constructions identify three types of control/behavioural properties:

1. Constructions that do not impose restrictions as to which argument/element is the controller/pivot (relativisation)
2. Constructions that display role-related restrictions (reflexivisation)
3. Constructions that display reference-related restrictions (Q-float)

Moreover, this paper has shown that the debate on the notions of subject in Mandarin Chinese is mainly connected to the assumptions and criteria employed to define them, namely an analysis based on overt subjecthood properties, such as the position in the sentence, fails to capture all argument realisation patterns in the language. Lastly, the status of GRs in Mandarin Chinese benefits from a systematic analysis of all GR-sensitive constructions along the lines of research conducted in other languages.

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