

Covert reflexive argument in inalienable relational nouns

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Abstract. This paper argues that inalienable relational nouns in Mandarin Chinese, specifically kinship nouns (e.g. *father*, *sister*) and body-part nouns (e.g. *head*, *face*), have an implicit reflexive argument. Based on a syntactic comparison between kinship nouns, body-part nouns, and locally and long-distance bound reflexives, we argue that the implicit reflexive arguments of kinship nouns and body-part nouns differ from each other: The implicit argument of body-part nouns must be locally bound, whereas that of kinship nouns can either be locally bound or long-distance bound. Therefore, we conclude that these two types of implicit arguments in Mandarin Chinese correspond to locally and long-distance bound reflexives, respectively. Finally, we relate this difference to binding theory and the theory of logophoricity.

Keywords. relational nouns; body-part nouns; kinship nouns; inalienable possession; implicit argument; reflexive; logophor

1. Introduction. In Mandarin Chinese (henceforth, Chinese), inalienable relational nouns (RNs), including kinship nouns (e.g. *father*, *aunt*) and body part nouns (e.g. *head*, *face*) can generally occur as bare nouns and without an overt possessor. This raises important questions about the syntactic behavior of these bare inalienable RNs, including whether they have an implicit possessive argument and how this implicit argument is syntactically represented. (1) shows that the possessive argument of the kinship noun *son* must be present in English,¹ otherwise the sentence is ungrammatical, whereas (2) indicates that bare RNs in Chinese are completely acceptable. A question we investigate here is why in (2) *erzi* ‘son’ must be Mary’s son but not someone else’s son, even if another possible possessor is salient in the context.

- (1) Mary_j sent *(her_{j/k}) son to school.
 (2) Mali_j song erzi_{j/*k} qu xuexiao.²
 Mary sent son go school
 ‘Mary_j sent her_{j/*k} son to school.’

That is, assuming that bare inalienable RNs such as kinship and body part nouns have an implicit argument (Barker 1995, Partee 1983/1997, Partee and Borschev 2003, Vikner and Jensen 2002, Zhang 2009), we ask what the syntactic and semantic nature of their implicit argument is in Chinese, i.e. whether it is a pronoun or a reflexive. In addition, we consider whether kinship and body-part nouns bear the same type of implicit argument.

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¹ Only in some special cases the possessive argument of RNs can be omitted. For instance, in sentences such as (i) the bare kinship noun *mom* is allowed. However, the interpretation of the kinship noun is rather restricted: it can only refer to the speaker’s mother.

(i) Mom sent my sister home at 3pm.

² For the sake of convenience, we sometimes put the indices on the RNs, although the indices are supposed to identify the reference of the implicit argument of the RN.

A reasonable hypothesis is that inalienable RNs have a pronominal argument which is related to the possessor, because when the possessor of the RN is overtly realized in parallel examples to (2), it is usually a pronoun, as in the English counterpart in (1).

However, this paper provides evidence that the implicit argument of inalienable RNs must be a syntactically projected reflexive rather than a pronoun. Furthermore, a comparison of the implicit argument of kinship and body-part nouns to monomorphemic/simple reflexive *ziji* ‘self’ and polymorphemic/complex reflexive *taziji* ‘himself/herself’ leads us to make a distinction between kinship and body-part nouns. We argue that the syntactic nature of their implicit arguments differs: The implicit argument of body-part nouns must be locally bound, whereas that of kinship nouns can either be locally bound or long-distance bound. Finally, we relate this distinction to a theory of logophoricity.

For the sake of convenience, unless we indicate otherwise, in what follows “RN” stands only for inalienable RNs. In addition, we will restrict our discussion to two types of RNs, kinship and body-part nouns, and leave other types of RNs for future research.

1.1. INALIENABILITY AND IMPLICIT ARGUMENTS OF RNs. We define RNs as nouns which have more than one argument. In other words, the relational meaning comes from the RNs’ lexical meaning (Barker 1995). These RNs are called inherent RNs in Partee’s terms (Partee and Borschev 2003). This is because RNs have in their lexical meaning an inherent (implicit) argument, from which the RNs obtain their reference.

Regarding the semantic and syntactic representation of the implicit argument of RNs, previous studies in formal semantics agree that the implicit argument of RNs in general should be a pronominal variable, although it is still under debate whether this implicit argument is syntactically projected. One string of research including Partee (1983/1997) proposes an ‘inherent R’ to connect the implicit argument of RNs with another entity in the context (see also Vikner & Jensen 2002). This inherent R can connect the implicit argument to an entity salient in the context, which suggests that the implicit argument is pronominal. In that approach, this pronominal argument is not syntactically projected, but is instead only a semantic variable. Another string of research, including Stanley (2000, 2002), Stanley & Szabó (2000) and Martí (2015), argues that implicit arguments must be syntactically projected. The fundamental assumption of Stanley-style syntactic approaches is that “all effects of extra-linguistic context on the truth-conditions of an assertion are traceable to logical form (LF)” (Stanley 2000). Therefore, as long as an implicit argument has an effect on the truth-condition of an assertion, the argument must be present at LF, which is the “real structure” of the assertion. Given that LF is where syntactic structures are interpreted, it follows that if an implicit argument has an effect on the truth-conditions of an assertion, it must also be present in the syntactic structure. Although the syntactic approaches differ from the semantic approaches on whether or not the implicit argument of RNs must be syntactically projected, both types of approaches assume that the implicit argument of an RN can link to a salient entity in the context.

The syntactic status of the implicit argument of inalienable RNs (primarily body-part and kinship nouns, and sometimes part-whole relations) is less controversial in previous studies from the perspective of syntax. A wide-range of studies on inalienable nouns across languages share the conclusion that inalienable nouns are associated with a syntactically present inalienable possessor as their inherent implicit argument (e.g. Alexiadou 2003 for Greek; Ritter and Rosen 2014 for Blackfoot; Niu 2016, Zhang 2009 for Mandarin Chinese; and Guéron 1985, 2003, Nakamoto 2010, Vergnaud and Zubizarreta 1992 for French; see Chappell and McGregory 1996 and Coene and D’hulst 2003 for various other languages).

Body-part terms in French, which can be used without an explicit local possessor directly attached to them, are similar to bare RNs in Chinese. Guéron (1985) argues that the syntactic constraints on inalienable body-part nouns in French are essentially the same as those on anaphoric binding, as listed in (3).

- (3) a. The possessor of a body-part noun is obligatory.
 b. Locality constraint: the possessor must be in the same minimal argument domain as the body-part noun.
 c. Asymmetric c-command: the possessor must c-command the body part noun or its trace.

1.2. CHINESE BARE INALIENABLE RNs. Chappell's (1996) corpus-based study suggests that the "double subject construction" (which is also called "double nominal construction") is an instance of inalienable possessive structure. It seems that there are two subjects in (4), *ta* 's/he' and *yanjing* 'eye'. *Yanjing jinshi* 'eye being short-sighted' is the predicate for its subject *ta*, and *jinshi* '(being) short-sighted' is the predicate for the other subject *yanjing*. Importantly, the third person singular pronoun *ta* and the body-part noun *yanjing* must be in an inalienable possessive relation, that is, the eye must be her/his but not others' eye, whoever the pronoun refers to.

- (4) Ta yanjing jinshi.
 s/he eye short-sighted
 'S/he is short-sighted.'

Notice that the two subjects are not necessarily adjacent to each other, as shown in (5a). In fact, the possessor can be implicit, linking to a referent established in the previous clause (5b). as Chappell (1996) suggests that the implicit possessor is a zero anaphor. However, Chappell (1996) does not explain what is the syntactic nature of this zero anaphor.

- (5) a. Ta zhi-shi yanjing you-xie jinshi.
 s/he only-be eye have-little short-sighted
 'S/he is just a little short-sighted.'
 b. Ta_j hen nianqing. Zhi-shi e_j yanjing yijing you-xie jinshi.
 S/he very young only-be eye already have-little short-sighted
 'S/he is very young. But s/he is already a little short-sighted.'

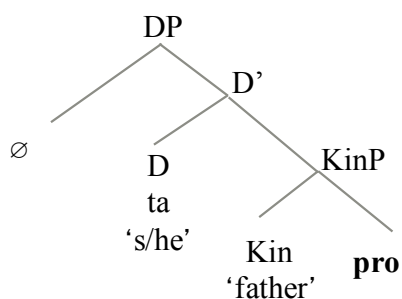
Contrary to Chappell (1996), Niu (2016) assumes that the implicit argument of RNs, specifically kinship nouns,³ is a pro. The syntactic structure for *ta baba* 'her/his father' is presented as in (6). The null pro agrees with the pronoun, which occupies the D head. Unfortunately, Niu (2016) does not explain why the null argument of kinship nouns must be a pro, assuming this suggests that she treats it as a pronominal, instead of an anaphor.

Zhang (2009) further notices that in double subject constructions such as (4), which she instead calls Relational-Nominal Second Construction, the inalienable RN must be in a position c-commanded by its possessor. Therefore, (4) becomes ungrammatical when the possessor and the RN are reversed, as shown in (7). Zhang (2009) proposes that the possessor and the inalienable RN associated with it are base-generated as a complex NP in Relational-Nominal Second Constructions. The possessor is originally the external argument of the RN. The possessor then

³ Based on the fact that pronoun + body-part (e.g. *ta yanjing* 'her/his eyes') is ungrammatical in the object positions, Niu (2016) argues that body-part nouns do not have an implicit argument and are not RNs. Niu (2016) restricts her analysis to the juxtaposed possessives *ta baba* 'her/his father'.

moves to the topic or the focus position. This movement approach captures some syntactic properties of the possessor and the RNs, including the facts that the two “subjects” are not necessarily adjacent to each other and that the RN must be asymmetrically c-commanded by the possessor, which we discussed above. These reasons are not sufficient to motivate a movement approach instead of a binding approach, such as the one suggested in Guéron (1985), since the latter can also account for such syntactic properties. An important reason that has motivated Zhang’s (2009) movement approach, instead of a binding approach, is the island effects observed in (8a, b). (8) shows that a resumptive pronoun must be present to rescue the violation of the island constraint when the possessor of the inalienable RN *erduo* ‘ear’ is raised from a complex NP island or an adjunct PP island. Such island effects should not occur if the possessor does not move from a subject NP island (9). Zhang argues that a binding approach cannot explain these island effects.

(6) ta baba ‘her/his father’



(7) *Yanjing ta jinshi.
 eye s/he short-sighted
 Intended: ‘S/he is short-sighted.’

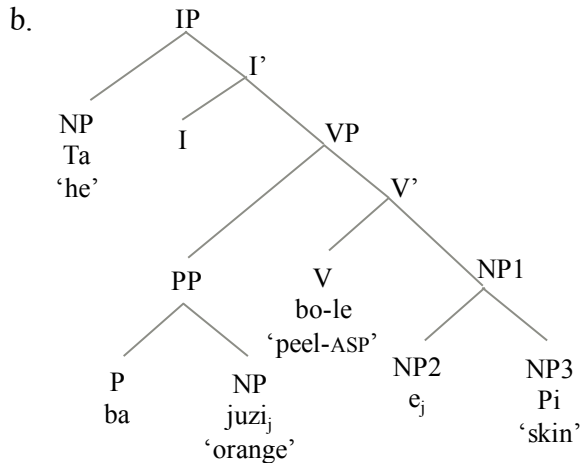
(8) a. Lulu wo tingshuo-le [_{NP} [(ta-de) yanjing xia-le] de yaoyan].
 Lulu I hear-PRF 3SG-POSS eye blind-PRF DE rumor
 ‘Speaking of Lulu, I heard the rumor that her eyes have become blind.’

b. Lulu wo [_{PP} zai *(ta-de) yanjing xia-le zhiqian] jian-guo ta.
 Lulu I at 3SG-POSS eye blind-PRF before see-EXP her
 ‘Speaking of Lulu, I saw her before her eyes became blind.’

(9) Lulu wo tingshuo [_{NP} (ta-de) erduo] hen ling.
 Lulu I hear 3SG-POSS ear very sensitive
 ‘Lulu, I heard that her ears are very sensitive.’

Cheng and Ritter (1987) provide an analysis for another type of inalienable possessive construction, as in (10a), with the corresponding syntactic structure shown in (10b).

(10) a. Ta ba juzi bo-le pi.
 s/he BA orange peel-ASP skin
 ‘S/he skin-peeled the orange.’



Cheng and Ritter (1987) assume that an empty anaphor, e in (10b), is projected inside the complex nominal NP1 and is bound by the complement of *ba*. Notice that Cheng and Ritter (1987) assume that *ba* is a proposition that assigns the theta-role of affected theme to a complement, and this complement “weak[ly] c-commands” the anaphor since the node immediately dominating it c-commands the anaphor (Huang 1982). Although they provide no details regarding how the inalienable possessive relation between the null anaphor and the body-part noun *pi* ‘skin’ comes into place, Cheng and Ritter (1987) seem to consider the null anaphor as an argument of the body-part nouns, which they treat as a predicate.

The idea of taking the argument of an inalienable body-part noun as an anaphor is preserved in Huang, Li and Li’s (2009) discussion of still another type of possessive construction, the “possessive passive” construction, as in (11). The most relevant part of the analysis here is that *bei* is assumed to be a predicate that selects an experiencer subject *Zhangsan* and an IP denoting an event. The IP has an adjunct null operator OP controlled by the subject. This control relation is realized through *bei*-predication. The OP is in turn moved from the outer object of the VP *dasi-le Pro baba*, leaving a trace in the specifier of that VP. The outer object is the affectee of *bei*-predication. Finally, the trace of the OP controls the Pro, which is the possessor of the inalienable RN *baba* ‘father’.

- (11) Zhangsan_j bei [IP OP_j tufe_i [VP t_j dasi-le [NP Pro_j baba]]].
 Zhangsan BEI bandits kill-ASP father
 ‘Zhangsan had his father killed by the bandits.’

A crucial assumption here is that the possessor of *baba* ‘father’ in (11) is a Pro. Huang, Li and Li (2009) do not explain what is a Pro, but refer readers back to Huang (1989), where the Generalized Control Rule is proposed to capture the similarities between pro and PRO. The Generalized Control Rule implies that empty categories, including pro and PRO, must be controlled in their control domain (see Huang 1989). The Generalized Control Rule and the control domain are respectively very similar to Binding Condition A and the binding domain in Chomsky (1981, 1986), indicating that the Pro associated with the inalienable nouns in “possessive passive” constructions such as (11) is treated similarly to an anaphor.

In sum, Chappell (1996), Cheng and Ritter (1987), Huang, Li and Li’s (2009) and Niu (2016) treat the empty category associated with inalienable RNs in Chinese either as an anaphor which

co-indexes with an antecedent that controls it,⁴ or as a pro that is co-referent with its antecedent. Therefore, the syntactic nature of the implicit argument of RNs remains controversial. In addition, these studies examine only special possessive constructions such as double subject constructions, *ba*-constructions and *bei*-constructions, which seem to involve special theta role assignment. For instance, the double subject constructions have two “agents”, and *ba* and *bei* constructions include an affectee or an experiencer that is related to the possessor of the inalienable RN. These constructions are not ideal for the study of implicit arguments of RNs, because in addition to binding/agreement/control, possessor raising/movement can possibly also be involved, obscuring the syntactic nature of the implicit argument, as we have seen in the case of Zhang (2009) and Huang, Li and Li (2009).

Therefore, we turn our eyes back to bare RNs in non-raising structures, which provide us clean and novel material to investigate the syntactic nature of the implicit argument of RNs.

2. The reflexive implicit argument of bare RNs in Chinese. In this section, we explore the syntactic behavior of bare RNs in Chinese in non-raising constructions. First, we review Ke et al.’s (under review) arguments for a binding approach to the implicit argument of RNs in Chinese, and then provide additional evidence for this approach. Then we compare the implicit argument of body-part nouns with local bound reflexives in Chinese, pointing out their semantic and syntactic similarities.

Ke, et al. (under review) provides two pieces of experimental evidence for the argument that the implicit argument of bare RNs is more likely a reflexive than a pronoun. First, experiment participants judged (12) to be a false statement after being hearing a story in which Zhangsan and Lisi planned to take their sons to the island Qingdao for a trip, and Zhangsan ended up taking Lisi’s son but not his own son to Qingdao. The reason the participants provided to support their judgment was that *erzi* ‘son’ in (12) must be Zhangsan’s son, and not Lisi’s son.

- (12) Zhangsandai-le erzi qu Qingdao.
 Zhangsantake-asp son go Qingdao
 ‘Zhangsan took (his_{Zhangsan}/*Lisi) son (to go) to Qingdao.’

Those results are compatible with the hypothesis that the implicit argument of RNs is a reflexive, not a pronoun. The reflexive of the RN *erzi* ‘son’ takes the subject *Zhangsan* as its antecedent, so the son must be Zhangsan’s son. However, if the implicit argument were a pronoun, we would expect the RN to relate to a salient referent in the context, which would mean that the son could be Lisi’s son, contrary to what speakers indicated. Replacing the RN with a non-RN, e.g. *shubao* ‘schoolbag’ makes the sentence a true statement, as shown in (13), given a discourse context similar to the one used for (12). The interpretation of non-RNs in cases such as (13) shows that they do not have a reflexive argument.

- (13) Zhangsan na-le shubao hui sushe.
 Zhangsan take-ASP schoolbag return dormitory
 ‘Zhangsan took (?Zhangsan/?Lisi’s) schoolbag back to the dormitory.’

Second, Ke, et al.’s results show that the identification of the referent of the implicit argument of RNs observes a c-command requirement. That is, only c-commanding NPs can be the antecedent of the implicit argument of RNs. In (14), the son must be Mickey Mouse’s son rather than Donald Duck’s, because only *Mickey Mouse* c-commands the implicit argument of *erzi* ‘son’.

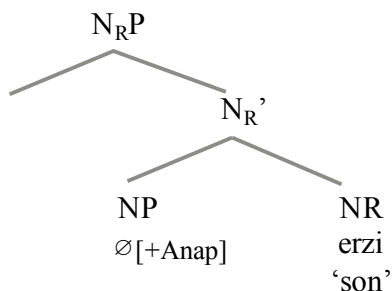
⁴ This proposal is similar to the binding approach to inalienable RNs in French, which we briefly mentioned above.

This c-command requirement for the co-reference reading is consistent with the hypothesis that the implicit argument is a reflexive, not a pronoun.

- (14) Milaoshu_j [PP zai Tanglaoya_k zhuyuan de shihou] dai-le e_{j/*k} erzi qu xiaodao
 Mickey-Mouse at Donald-Duck hospitalize DE time take-ASP son go small-island
 luyou.
 travel
 ‘Mickey Mouse, at the time Donald Duck was hospitalized, took (Mickey’s) son on a trip
 (to go) to the island.’

Therefore, Ke et al. propose the structure in (15) for RNs in Chinese, where RNs bear an implicit anaphoric argument. Although Ke et al. do not exclude PRO as a possible candidate for the implicit argument of the bare RNs, PRO is arguably not possible in constructions such as (12) and (14), since these constructions are main clause CPs, and not embedded control structures. Therefore, we will not consider PRO in the following discussion.

(15) Syntactic structure of RNs in Chinese



In what follows we provide theoretical arguments from quantifier binding and VP ellipsis to support the hypothesis that the implicit argument of bare RNs is a reflexive rather than a pronoun.

First, when a reflexive is bound by a quantifier, it allows only a bound reading; but a pronoun, can have both a bound reading and a referential reading. For instance, in (16a) the body-part noun *shou* ‘hand’, or rather, its implicit argument, is bound by *mei-ge xuesheng* ‘every student’, and the sentence has a bound reading only: for every student *x*, *x* wrote the answer on *x*’s hand.⁵ If we insert an explicit reflexive possessor before the RN, i.e. *ziji de* ‘self’s’ or *ta-ziji de* ‘her/him-self’s’, only bound reading is still available (16b). However, if instead a pronominal possessor is inserted (16c), the sentence becomes ambiguous, because besides the bound reading, *shou* ‘hand’ in (16c) can also refer to a possessor who is salient in the context.

- (16) a. mei-ge xuesheng_j dou ba da’an xie-zai shou_{j/*k}-shang.
 every-CLF student all BA answer write-at hand-on
 ‘Every student_j wrote the answer on (her/his own_{j/*k}) hand.’ (bound reading only)
- b. mei-ge xuesheng_j dou ba da’an xie-zai ziji_{j/*k}/ta-ziji_{j/*k} de shou-shang.
 every-CLF student all BA answer write-at self/her-/his-self DE hand-on
 ‘Every student_j wrote the answer on her/his own_{j/*k} hand.’ (bound reading only)

⁵ In this paper, we put aside a non-relational or arbitrary interpretation, where *shou* ‘hand’ in (16) refers to a salient referent in the context, e.g. an artificial hand known to the speaker and the listeners. This is a case where the implicit argument of the body-part is suppressed, following Barker (1995).

- c. mei-ge xuesheng_j dou ba da'an xie-zai ta_{j/k} de shou-shang.
 every-CLF student all BA answer write-at her/his DE hand-on
 'Every student_j wrote the answer on her/his_{j/k} hand.' (*bound and referential reading*)

In addition, we find that implicit arguments of RNs have interpretations similar to those of reflexives, not pronouns, when RNs are elided inside a VP. It has long been known that elided bound reflexives have only a sloppy reading, whereas elided bound pronouns have both a strict and a sloppy reading, as in the contrast between (17a, b) (Edwin 1977, Sag 1976, Shapiro and Hestvik 1995, but cf. Hestvik 1995 for some variation). (17a) means that John defended himself, and Bill also defended himself (sloppy reading). However, when a bound pronoun is elided in (17b), the sentence means Bill might have either defended John (strict reading) or himself (sloppy reading). We find that when RNs such as *toufa* 'hair' (18a) and *muqin* 'mother' (18b) are included in the elided VP, only the sloppy reading is possible, which suggests that the RNs' implicit argument is similar to a reflexive rather than a pronoun.

- (17) a. John_j defended himself_j, and Bill_k did [_{elided VP} defend himself_{*j/k}] too. (*sloppy reading only*)
 b. John_j likes his_j car and Bill_k does [_{elided VP} like his_{?j/k} car] too. (*ambiguous*)
- (18) a. Mali hen hui baoyang toufa, Linda ye shi. (*sloppy reading only*)
 Mary very able care hair Linda also is
 'Mary_j is very good at taking care of (her_j) hair, and Linda_k also [is very good at taking care of her_{*j/k} hair].'
 b. Zhangsan hen huainian muqin, Lisi ye shi. (*sloppy reading only*)
 Zhangsan very miss mother Lisi also is
 'Zhangsan_j missed (his_j) mother very much, and Lisi_k also [miss his_{*j/k} mother].'

The contrast is again confirmed when we insert an overt reflexive or pronominal possessor before the RNs. If a reflexive possessor is attached to the RN in (18a), shown in (19a), the interpretation of the sentence does not change. However, if a pronominal possessor is inserted (19b), either a sloppy or a strict reading is possible. The same applies to (18b), as shown in (20).

- (19) a. Mali hen hui baoyang **ziji/ta-ziji de** toufa, Linda ye shi. (*sloppy reading only*)
 b. Mali hen hui baoyang **ta de** toufa, Linda ye shi. (*ambiguous*)
- (20) a. Zhangsan hen huainian **ziji/ta-ziji de** muqin, Lisi ye shi. (*sloppy reading only*)
 b. Zhangsan hen huainian **ta de** muqin, Lisi ye shi. (*ambiguous*)

2.1. BARE BODY-PART NOUNS BEAR LOCAL BOUND REFLEXIVE ARGUMENTS. If the hypothesis that bare RNs have a reflexive argument is on the right track, a question immediately comes up: do body-part and kinship RNs have the same type of implicit reflexive argument? This question is important because Chinese has two types of reflexives, morphologically complex reflexives pronoun-*ziji*, e.g. *ta-ziji* 'her-/him-self' and morphologically simple reflexives e.g. *ziji* 'self'. Complex reflexives are similar to English reflexives which must be locally bound in the minimal tensed TP [or DP with a subject] where the reflexive is located (Huang, Li and Li 2009; see Pan 1998 for exceptions). On the other hand, the simple reflexive is a long-distance bound reflexive which allows a c-commanding antecedent in a higher tensed TP. We observe that the implicit argument of body-part nouns is like complex reflexives because both of them must be locally bound; whereas that of kinship nouns is like the simple reflexive, since both of them can be long-distance bound. We focus first on comparing complex reflexives and body-part nouns.

Similar to complex reflexives, bare body-part nouns in Chinese must be c-commanded and

locally bound by their antecedent. In (21a) *Zhangsan* but not *Lisi* can be the antecedent of the body-part noun *tui* ‘leg’ because the former c-commands *tui* but the latter does not. Substituting *tui* with a complex reflexive *ta-ziji* ‘her/him-self’ leads to the same interpretation (21b).

- (21) a. Zhangsan_j [PP zai Lisi_k kanshu shi] shuai-teng-le **tui**_{j/*k}.
 Zhangsan at Lisi read-book period break-painful-asp leg.
 ‘Zhangsan_j hurt (his_{j/*k}) leg when Lisi_k was reading a book.’
 b. Zhangsan_j [PP zai Lisi_k kanshu shi] shuai-teng-le **ta-ziji**_{j/*k}.

(22a) shows that *shou* ‘hand’ must be locally bound, taking only the local subject *Lisi* as the antecedent. This is confirmed by (22b), where a complex reflexive possessor is inserted before *shou* and the same interpretation is obtained. If we insert a simple reflexive *ziji* ‘self’ instead (22c), the sentence has a different interpretation; (22c) is ambiguous in that the simple reflexive can be locally or long-distance bound.

- (22) a. Zhangsan_j yishi-dao [TP Lisi_k kuai qie-dao shou_{*j/k} le]. (local)
 Zhangsan realize Lisi soon cue-reach hand SFP
 ‘Zhangsan_j realized that Lisi_k is about to cut (his_{*j/k}) hand.’
 b. Zhangsan_j yishi-dao [TP Lisi_k kuai qie-dao **ta-ziji**_{*j/k} de shou le]. (local)
 c. Zhangsan_j yishi-dao [TP Lisi_k kuai qie-dao **ziji**_{j/k} de shou le]. (ambiguous)

2.2. KINSHIP NOUNS BEAR LONG-DISTANCE BOUND REFLEXIVE ARGUMENTS. We have shown that body-part nouns bear a locally bound reflexive argument, now let us test if kinship nouns have the same type of reflexive argument. If kinship nouns had a locally bound reflexive argument, we would expect them to have the same distribution as body-part nouns. However, if kinship nouns instead have a long-distance anaphor/reflexive argument, then we expect the argument to have the core, if not all, syntactic properties of the simple reflexive *ziji*. This latter prediction is borne out: the implicit argument of kinship nouns is syntactically similar to the simple reflexive. In order to compare kinship nouns with simple reflexives, we examine the syntactic properties in (23), which were identified as the most important syntactic characteristics of Chinese simple reflexives in the literature (e.g. Cole and Sung 1994, Huang and Tang 1991, Pan 2001, Wang and Pan 2015, Xue, Pollard and Sag 1994). We discussed the c-command requirement at the beginning of Section 2; we now focus on the three other properties.

- (23) a. C-command requirement
 b. Long-distance binding
 c. Subject-orientation
 d. Blocking effects

Long-distance binding. *Fuqin* ‘father’ in (24a) can be either John or Tom’s father, which means that the implicit argument of *father* can be either locally or long-distance bound. We find that the interpretation is the same as (24b) where a simple reflexive possessor is inserted, and different from (24c) where a complex reflexive possessor is added.

- (24) a. Yuehan_j zhidao [TP Tangmu_k hen aihu fuqin_{j/k}]. (ambiguous)
 John know Tom very care-for father.
 ‘John_j knows that Tom_k takes good care of (his_{j/k}) father.’
 b. Yuehan_j zhidao [TP Tangmu_k hen aihu **ziji**_{j/k} de fuqin]. (ambiguous)
 c. Yuehan_j zhidao [TP Tangmu_k hen aihu **ta-ziji**_{*j/k} de fuqin]. (local)

Subject-orientation. Although any NP that c-commands *ziji* can in principle be taken as its antecedent, there is a strong tendency to take the subject rather than the object as the antecedent (Huang 1982, but see Huang, Li and Li 2009 for exceptions). For example, in (25a), *ziji* refers to the subject *Zhangsan* rather than the object *Lisi*. Both *Zhangsan* and *Lisi* c-command *ziji*, so it is surprising that only *Zhangsan* can be taken as the antecedent of *ziji*. We do not see such a strong subject-orientation effect for the complex reflexive (25b), and the pattern for kinship nouns is similar to that of the simple reflexive (25c).⁶ (26a) shows that the body-part noun *lian* ‘face’ is not subject-oriented, and (26b) shows the similarity to the overt complex reflexive possessor case, which is also not subject-oriented, unlike the overt simple reflexive possessor.

- (25) a. Zhangsan_j songgei-le Lisi_k yi-zhang **ziji**_{j/*k} de zhaopiao.
 Zhangsan give-ASP Lisi one-CLF self DE picture
 ‘Zhangsan_j gave Lisi_k a picture of himself_{j/*k}.’
 b. Zhangsan_j songgei-le Lisi_k yi-zhang **ta-ziji**_{j/?k} de zhaopiao.
 c. Zhangsan_j songgei-le Lisi_k yi-zhang **erzi**_{j/*k} de zhaopiao.
 Zhangsan give-ASP Lisi one-CLF son DE picture
 ‘Zhangsan_j gave Lisi_k a picture of (his_{j/*k}) son.’
- (26) a. Zhangsan_j gei Lisi_k hua-le yi-zhang lian_{j/k} de sumiao.
 Zhangsan give Lisi draw-ASP one-CLF face DE sketch
 ‘Zhangsan_j drew Lisi_k a sketch of his_{j/k} face.’
 b. Zhangsan gei Lisi_k hua-le yi-zhang **ziji**_{j/*k} /**ta-ziji**_{j/?k} lian de sumiao.

Blocking effects. Many researchers have noted that first- and second-person pronouns can block third-person NPs from long-distance binding of *ziji* (Huang and Tang 1991, Pan 2001, Xue, Pollard and Sag 1994). (27a) reveals that in general, any c-commanding third person nouns can be the antecedent of *ziji*. However, in (27b), although *Yuehan* ‘John’, *ni* ‘you’ and *Tangmu* ‘Tom’ all c-command *ziji* and are all in principle possible antecedents, only the lowest, *Tangmu* can serve as the antecedent. This is because the second-person pronoun *ni* ‘you’ prevents the reflexive from taking the first NP *Yuehan* ‘John’ as its antecedent (c.f. Charnavel, et al. 2017 and references therein for competing explanations of the blocking effect).

- (27) a. Yuehan_i renwei Yage_j zhidao Tangmu_k dui **ziji**_{i/j/k} mei xinxin.
 John think Jacob know Tom toward self no confidence
 ‘John_i thinks that Jacob_j knows that Tom_k is not confident in himself/him_{i/j/k}.’
 b. Yuehan_i renwei **wo**_j / **ni**_j zhidao Tangmu_k dui **ziji**_{*i/*j/k} mei xinxin.
 John think I/you know Tom toward self no confidence
 ‘John_i thinks that I_j/you_j know that Tom_k is not confident in himself_{*i/*j/k}.’

Similar blocking effects are observed with the implicit argument of kinship nouns. For instance, when we replace the simple reflexive *ziji* with the kinship noun *erzi* ‘son’, exactly the same contrast as in (27a, b) is detected between (28a, b).

⁶ Huang and Tang (1991) have a different intuition toward (25b), which they think exhibits subject-orientation as well. They list another example of subject-orientation with complex reflexives which we copy below as (i).

(i) Zhangsan_i gaosu Lisi_j ta-ziji de shenshi.
 Zhangsan tell Lisi he-self DE life-story
 Zhangsan_i told Lisi_j the story of his_{i/*j} life.’

However, we are happy to accept *Lisi* as the antecedent of *ta-ziji* under the context that *Lisi* did not know much about his own life story (e.g. *Lisi* lost his memory) but *Zhangsan* knew that and told *Lisi* the story. In addition, if *ta-ziji* in (i) is replaced with *ziji*, we obtain a much stronger subject-orientation effect.

- (28) a. Zhangsan_i renwei [TP Wangwu_j zhidao [TP Lisi_k dui **erzi**_{i/j/k} mei xinxin]].
 Zhangsan think Wangwu know Lisi toward son no confidence
 ‘Zhangsan_i thinks that Wangwu_j knows that Lisi_k is not confident in his_{i/j/k} son.’
 b. Zhangsan_i renwei [TP **wo/ni**_j zhidao [TP **Lisi**_k dui **erzi**_{*i*/j/k} mei xinxin]].

2.3. CONTRASTING BODY-PART AND KINSHIP RNS. We have seen that the implicit arguments of body-part and kinship RNS are different in the sense that the former must be locally bound whereas the latter can be either locally or long-distance bound.

In this section, we would like to directly contrast body-part and kinship nouns in some other special circumstances. As in English, a DP with an accessible subject, e.g. a nominalized DP (29) or a relative clause (30), is a binding domain in Chinese, and it will block long-distance binding outside the local binding domain of a body-part noun as in (29a) and (30a), but not that of a kinship noun as in (29b) and (30b).

- (29) a. Zhangsan_j zanyang-le [DP Lisi_k jishi baozha shoushang de **shoubi**_{?*/j/k} de xingwei].
 Zhangsan praise-ASP Lisi timely bind-up wound DE arm DE behavior
 ‘Zhangsan_j praised that Lisi_k’s timely binding-up of (his_{?*/j/k}) injured arm.’
 b. Zhangsan_j zanyang-le [DP Lisi_k jishi baozha shoushang de **muqin**_{?/j/k} de xingwei].
 Zhangsan praise-ASP Lisi timely bind-up wound DE mother DE behavior
 ‘Zhangsan_j praised that Lisi_k’s timely binding-up of (his_{?/j/k}) injured mother.’
 (30) a. Zhangsan_j renshi nage [RC [t_k zhedian-le **shoubi**_{?*/j/k}] de xiaohuozi_k].
 Zhangsan know that break-ASP arm DE young-man
 ‘Zhangsan_j knew the young man_k who broke his_{?*/j/k} arm.’
 b. Zhangsan_j renshi nage [RC [t_k piping-le **fuqin**_{j/k}] de xiaohuozi_k].
 Zhangsan know that criticize-ASP father DE young-man
 ‘Zhangsan_j knew the young man_k who criticized his_{j/k} father.’

Furthermore, reconstruction provides another way to distinguish the implicit argument of body-part from that of kinship nouns. Similar to English reflexives (Huang 1993), we expect that the reflexive argument of body-part and kinship nouns is also subject to reconstruction. This prediction is borne out. We use the *lian...dou* ‘even...all’ focus construction to front the phrase with kinship terms or body-parts. As we can see in (31a, b), reconstruction occurs both with the fronted *fuqin* ‘father’ and *lian* ‘face’, resulting in the interpretation where *Lisi* binds the fronted kinship noun and the body-part, although it does not c-command them.

- (31) a. Zhangsan_j zhidao [CP *lian* **fuqin**_{j/k} Lisi_k dou hui piping **fuqin**_{j/k}].
 Zhangsan know even father Lisi all will criticize father
 ‘Zhangsan_j knew that Lisi_k would criticize even (his_{j/k}) father.’
 b. Zhangsan_j zhidao [CP *lian* **lian**_{*j/k} Lisi_k dou huapo-le **lian**_{*j/k}].
 Zhangsan know even face Lisi all scratch-ASP face
 ‘Zhangsan_j knew that Lisi_k scratched even (his_{*j/k}) face.’

Notice that in (31a, b) there is a clear difference between kinship nouns and body-parts. In (31a), the kinship noun *fuqin* ‘father’ can link to Zhangsan, an antecedent outside of its local CP. This is a case of long-distance binding. On the other hand, long-distance binding is not possible with the body-part noun (31b). We further notice that long-distance binding is not available as in (31b) if we insert a complex reflexive possessor before the body-part (32a). However, if a simple reflexive possessor is inserted, long-distance binding becomes possible (32b).

- (32) a. Zhangsan_j zhidao [CP **lian** **ta-ziji**_{2*/j/k} **de** **lian** Lisi dou huapo-le **ta-ziji**_{2*/j/k} **de** **lian**].
 Zhangsan zhidao even him-self DE face Lisi all scratch-ASP him-self DE face
 ‘Zhangsan_j knew that Lisi_k scratched even his own_{j/k} face.’
- b. Zhangsan_j zhidao [CP **lian** **ziji**_{j/k} **de** **lian** Lisi dou huapo-le **ziji**_{j/k} **de** **lian**].
 Zhangsan zhidao even self DE face Lisi all scratch-ASP self DE face
 ‘Zhangsan_j knew that Lisi_k scratched even his own_{j/k} face.’

A remaining puzzle is why there is such a distinction between body-part and kinship nouns. In the next section we consider a tentative answer, relating our findings to current theories of anaphora and logophoricity.

3. Theoretical implications. Why must the implicit argument of body-part nouns be locally bound whereas that of kinship nouns can be long-distance bound? Following Huang and Liu (2001) and Huang, Li and Li (2009), we suggest that the implicit argument of body-part cannot be used as a logophor, whereas that of kinship nouns can, and it is the logophoric uses that lead to long-distance binding.

Huang and Liu (2001) and Huang, Li and Li (2009) argue that local-bound reflexives are real reflexives which are subject to Binding Theory, and long-distance bound reflexives are logophors. They observe that long-distance simple reflexive *ziji* is limited to logophoric uses, that is, in the sentence where logophoric use is detected, (a) speech or thought, (b) attitude or state of consciousness, and/or (c) point of view (perspective) is being reported. Besides, blocking effects are a diagnostic for logophoric use, because Huang, Li and Li (2009) considers blocking effects a result of invalid conflicts in perspectives. Huang, Li and Li (2009) thus correctly predict that blocking effects do not occur for locally bound non-logophoric *ziji*, and this prediction is borne out as exemplified in (33). (34a) indicates that when kinship nouns are locally bound, they are not subject to blocking effects either, although we have seen that they exhibit blocking effects when they are long-distance bound. Importantly, body-part nouns are also exempt from blocking effects (34b).

- (33) Zhangsan_j gaosu wo **ziji**_j de fenshu.
 Zhangsan tell me self DE grade
 ‘Zhangsan told me about his own grade.’
- (34) a. Zhangsan_j gaosu wo **erzi**_j de fenshu.
 Zhangsan tell me son DE grade
 ‘Zhangsan told me about his son’s grade.’
- b. Zhangsan_j gaosu wo **shou**_{bi} de shoushang qingkuang.
 Zhangsan tell me arm DE injure condition
 ‘Zhangsan told me about his arm injury.’

We further notice that the relational interpretation of bare body-part RNs is not available if the predicates are “conceptual”, such as “believe, understand, know, study, admire”. These predicates usually induce one of the logophoric use licensers (Charnavel and Zlogar 2015, Rudnev 2017). For example, Rudnev (2017) finds a simple reflexive in Avar, *žiw*, which is only allowed to be long-distance bound, and argues that it must be a logophor because the matrix predicate must be “a verb of saying, belief, or perception” (attitudinal predicate) to license the logophor in the embedded clause. In Chinese, there seems to be an inherent conflict between the bare body-part RNs and these “conceptual” predicates, and no such conflict occurs for kinship nouns. (35a) instantiates this conflict: given a conceptual predicate, *Shou* ‘hand’ does not have a relational

interpretation. The only interpretation that is available here is the arbitrary interpretation, which arises when the implicit argument of the body-part noun is suppressed (Barker 1995) or saturated (Zhang 2009). On the other hand, kinship nouns such as *fuqin* ‘father’ can still be relational in the same context.

- (35) a. Zhangsan_j lijie/yanjiu/renshi/xiangxin/zanshang **shou**_{*j/ARB} de zuoyong.
 Zhsangsan understand/study/know/believe/admire hand DE function
 ‘Zhangsan understood/studied/knew/believed the function of the hand.’
 b. Zhangsan_j lijie/yanjiu/renshi/xiangxin/zanshang **fuqin**_{j/ARB} de zuoyong.
 c. Zhangsan_j lijie/yanjiu/renshi/xiangxin/zanshang **ta-ziji**_{j/ARB} de shou de zuoyong.
 ‘Zhangsan understood/studied/knew/believed the function of his hand.’

Note that it is not because these conceptual predicates are themselves not compatible with any objects with body-part nouns. In (35c), where a complex reflexive possessor of the body-part noun is inserted, the relational meaning of the body-part noun is available, underpinning the idea that it is the interpretation of the implicit reflexive argument that is affected by the conceptual predicates. The dissociation between the bare body-part RNs and the conceptual predicates that license logophoricity supports the argument that locally bound bare body-part RNs are not logophoric. In Norwegian, a very similar condition concerning the use of bare body-part RNs has been observed: bare body-part RNs occur in physical context but not with predicates such as “admire, talked about” (Lødrup 1999, 2014). Similar restrictions are also found for body-part RNs in French (Guéron 2003, 2006).

To conclude, the current study provides evidence for the implicit reflexive argument of inalienable RNs and shows that there are two types of reflexive arguments. Body-part nouns have a locally bound reflexive argument whereas kinship nouns bear a long-distance reflexive argument. Therefore, these two types of arguments correspond to the locally bound complex reflexives and the long-distance simple reflexive in Chinese, respectively. Finally, we attribute the distinction to the fact that body-part nouns are not compatible with logophoric use whereas kinship nouns do. In other words, it is possible the logophoric use that have led to long-distance binding in Chinese, supporting the conclusion of Huang and Liu (2001).

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