# On Multiple Reflexives in Japanese<sup>\*</sup> Toru Ishii Meiji University/Harvard University

# 1. Introduction

It is well known that the Japanese reflexive *zibun* 'self' is a long distance anaphor with a subject orientation (see, among others, Kuroda 1965; Kuno 1973; Akatsuka 1976; Inoue 1976). In (1), for example, the reflexive *zibun* 'self' is ambiguous in that it can take as its antecedent either the embedded subject *Mary* or the matrix subject *John*:

(1) John-ga [Mary-ga zibun-no kuruma-de Tookyoo-ni itta to] John-NOM Mary-NOM self-GEN car-in Tokyo-to went C omotteiru (koto) think (fact)
'John thinks that Mary went to Tokyo in self's car.'

Howard and Niekawa-Howard (1976) claim, however, that there is a further constraint on the interpretation of reflexives:

(2) John-ga [Mary-ga [zibun-no imooto]-ni [zibun-no hon]-o watasita John-NOM Mary-NOM self-GEN sister-DAT self-GEN book-ACC gave to] itta (koto)
 C said (fact)

In (2), there appear two reflexives in the embedded clause. Without any further constraint, these two reflexives should both be ambiguous so that (2) should be four-way ambiguous. Howard and Niekawa-Howard observe that (2) is only two-way ambiguous as shown in (3a-d):

- (3) a. ATB reading: John said that Mary gave his book to his sister.
  - b. ATB reading: John said that Mary gave her book to her sister.
  - c. Mixed reading: \* John said that Mary gave his book to her sister.
  - d. Mixed reading: \* John said that Mary gave her book to his sister.

In order to capture this fact, they propose the Reflexive Coreference Constraint (RCC) (4) (Howard and Hiekawa-Howard 1976:229):

(4) The Reflexive Coreference Constraint (RCC)

Two instances of the reflexive pronoun *zibun* commanded by the same pair of possible antecedents must be coreferential. If they are not, the sentence is marked as ungrammatical.

According to the RCC, the two reflexives in (2) are commanded by the same pair of possible antecedents, *i.e. John* and *Mary*, so that (2) can only have the 'across-the-board readings' (ATB readings) (3a, b), where the two reflexives have the same antecedent, but not the 'mixed readings' (3c, d), where the two reflexives have different antecedents. Although Howard and Niekawa-Howard mark the mixed readings (3c, d) as ungrammatical, the judgments are not so crystal clear to every speaker. It is important to note, however, that almost all speakers find that the 'mixed readings' are worse than the 'ATB readings.'

The RCC effect is also observed in Chinese and Korean as exemplified by (5) and (7) (see, among others, Fiengo and Kim 1980; Richard 1996; Kim and Kitagawa 2002):

- (5) Xiao Ming xiang [Da Hua zai ziji de frangjian zuo ziji de gongke]
- Xiao Ming think Da Hua at self DE room do self DE homework (6) a. ATB reading: Xiao Ming<sub>i</sub> said that Da Hua<sub>j</sub> was doing his<sub>i</sub>
  - homework in **his**i room.
  - b. ATB reading: Xiao Ming<sub>i</sub> said that **Da Hua**<sub>j</sub> was doing **his**<sub>j</sub> homework in **his**<sub>j</sub> room.
  - c. Mixed reading:\*Xiao Ming<sub>i</sub> said that Da Hua<sub>j</sub> was doing his<sub>i</sub> homework in his<sub>j</sub> room.
  - d. Mixed reading:\*Xiao Ming<sub>i</sub> said that Da Hua<sub>j</sub> was doing his<sub>j</sub> homework in his<sub>i</sub> room.

(Richards 1996: 25)

- (7) Chelswu-ka [Sunhi-ka caki pang-ese caki il-ul hakoissta ko] Chelswu-NOM Sunhi-NOM self room-in self work-ACC was-doing C syangkakhanta think
- (8) a. ATB reading: **Chelswu**<sub>i</sub> thinks that Sunhi<sub>j</sub> is doing **his**<sub>i</sub> work in **his**<sub>i</sub> room.
  - b. ATB reading: Chelswu<sub>i</sub> thinks that **Sunhi**<sub>j</sub> is doing **his**<sub>j</sub> work in **his**<sub>j</sub> room.
  - c. Mixed reading:\* **Chelswu**<sub>i</sub> thinks that **Sunhi**<sub>j</sub> is doing **his**<sub>i</sub> work in **his**<sub>j</sub> room.
  - d. Mixed reading:\* **Chelswu**<sub>i</sub> thinks that **Sunhi**<sub>j</sub> is doing **his**<sub>j</sub> work in **his**<sub>i</sub> room.

#### (Richards 1996: 25)

This paper argues that the RCC effect straightforwardly follows from the properties of AGREE, presenting further evidence for an AGREE analysis of anaphoric binding proposed by, among others, Reuland (2005) and Chomsky (2008). The organization of this paper is as follows. Section 2 exlicates previous analyses of the RCC effect. Section 3 proposes an AGREE analysis of the RCC effect. It is shown that the RCC effect follows from the properties of AGREE. Section 4 argues that the AGREE analysis should be preferred over previous analyses in that the former accounts for not only the RCC effect but also 'blocking effects' induced by the multiple nominative construction and subject honorification, which remains unexplained under any previous analyses. Section 5 makes concluding remarks.

### 2. Previous Analyses

## 2.1 Kim and Kitagawa's (2002) relativized opacity analysis

Kim and Kitagawa (2002) propose the notion of "relativized opacity" (9) to account for intervention effects in Korean *wh*-constructions:

- (9) Relativized Opacity
  - a. Opacity One actual instance of
    - One actual instance of head-licensing makes the licensing domain opaque.
  - b. Domain The maximal projection of the licensing head is the domain of licensing.
  - c. Relativization
    - This opacity prohibits the same type of licensing from outside the domain.

They apply this notion of "relativized opacity" to the RCC effect. They claim that a verb is a "licensing head" for reflexive binding. On the assumption that a verb has a selectional relation with its external argument in its Spec, the verb pairs its external argument with *zibun* 'self'; the external argument is interpreted as the antecedent of *zibun* 'self'. When a verb pairs its external argument with two instances of *zibun* 'self' as represented in (10), we can get the ATB readings (3a, b), depending on whether V is the matrix verb or the embedded verb:



When the embedded verb licenses only one instance of *zibun* 'self', on the other hand, the maximal projection of the licensing head, *i.e.* the embedded VP, becomes an opaque domain for reflexive binding, as illustrated in (11):



Reflexive binding of the other instance of *zibun* 'self' is prohibited from outside the embedded VP. This excludes the mixed readings (3c, d). Hence, the RCC effect follows.

As pointed out by Fujii (2004), however, Kim and Kitagawa's analysis is not desirable, since their analysis does not explain why reflexive binding makes VP domain opaque. In other words, their analysis stipulates the notion of relativized opacity (9). Rather, the notion of relativized opacity should be derived from general properties of grammar.

#### 2.2 Feature movement analyses (Richards 1996; Fujii 2004)

Assuming Chomsky's (1995) 'feature movement', Richards (1996) and Fujii (2004) propose a feature movement analysis of the RCC effect. They claim that the RCC effect follows from the Minimal Link Condition. Since they share the basic insight, I will only explicate Fujii's analysis. Fujii's analysis consists of the following three main claims. First, *zibun* 'self' bears 'F feature', which undergoes 'feature movement' to enter into a checking relation with T that has a matching feature F. *Zibun* 'self' is then interpreted as coreferential with the Spec of T, *i.e.* the subject of the clause. Second, T may or may not have 'F feature'. Third, the 'F feature' on *zibun* 'self' moves to the closest T that has 'F feature'. Under his feature-movement analysis, the ATB readings (3a, b) are assigned representations (12) and (13) respectively:



In (12), the F-features of *zibun* 'self' undergo feature-movement to the matrix T with F-feature; the two reflexives take the matrix subject as their antecedent. In (13), they undergo feature-movement to the embedded T with F-feature so that the two reflexives take the embedded subject as their antecedent.

The mixed readings (3c, d), however, are excluded by the Minimal Link Condition as represented in (14):

(14) Mixed Readings (3c, d)



When one instance of *zibun* 'self' undergoes feature-movement to the embedded T with F-feature, the other instance of *zibun* 'self' cannot undergo feature-movement to the matrix T, since it skips the closest T with F-feature and violates the Minimal Link Condition. Hence, the RCC effect follows. The

feature movement analysis is more desirable than the relativized opacity analysis, since the former explains why the embedded clause becomes an opaque domain when reflexive binding takes place, *i.e.*, the opaque domain is due to the Minimal Link Condition.

In the rest of this paper, I will propose an AGREE analysis of the RCC. It is shown that our AGREE analysis should be preferred over the feature movement analysis in that our analysis accounts for not only the RCC effect but also 'blocking effects' induced by the multiple nominative construction and subject honorification.

# **3.** A Proposal **3.1** An AGREE analysis of *zibun*

Chomsky (2000) develops a system of AGREE, where 'feature movement' is replaced by 'feature valuation' through agreement. Since then, AGREE analyses of anaphoric binding have been proposed by, among others, Reuland (2005) and Chomsky (2008). The AGREE analyses claim that a phase head (PH) undergoes Multiple AGREE with a reflexive (R) and its antecedent (XP) so that they share their  $\phi$ -features, which is interpreted as a binding relation, as represented in (15):



I extend the previous AGREE analyses to an analysis of the Japanese reflexive *zibun* 'self'. This paper adopts Pesetsky & Torrego's (2007) system of features (16):

(16) Pesetsky and Torrego's (2007) System of Features

- a. Both interpretable and uninterpretable features may come as valued and unvalued.
- b. AGREE involves valuation and feature sharing, *i.e.* matching features coalesce into a common feature, which is valued if either of the coalescing features is valued.
- c. Valuation of one feature by another feature creates a link that is accessible to subsequent operations (see also Frampton and Gutmann 2000; Boeckx 2008).

Based on Pesetsky & Torrego's feature system, let us explicate the basic properties of *zibun* 'self'. First, as pointed out by, among others, Akatsuka (1976), Kuno (1973), and Katada (1991), the antecedent of *zibun* 'self' can be any person, number, and gender as long as it is [+human] as shown in (17):

(17) a. Person/gender free

Watasi/Anata/John/Mary-ga [zibun-no sensei]-o kiratteiru (koto) I/you/John/Mary-NOM self-GEN teacher-ACC hate (fact) 'I/you/John/Mary hate(s) self's teacher.'  b. Number free [John to Mary]-ga [zibun-o sensei]-o kiratteiru (koto) John and Mary-NOM self-GEN teacher-ACC hate (fact) 'John and Mary hate self's teacher.'<sup>2</sup>

Based on this property, I claim that *zibun* 'self has interpretable unvalued  $\phi$ -features. *Zibun* 'self therefore must be provided with its  $\phi$ -feature values from its antecedent, which has interpretable valued  $\phi$ -features. Second, I claim with, among others, Katada (1991) and Huang & Liu (2001) that *zibun* 'self is an operator, since the unvalued  $\phi$ -features of *zibun* 'self imply that *zibun* 'self has a "semantic range," which is a property shared with other operators like *wh*-words. More specifically, I assume that *zibun* 'self has an interpretable valued operator feature, a  $\lambda$ (-operator) feature with the reflexive value [Ref] (cf. Huang & Liu 2001). Third, as mentioned in section 1, *zibun* 'self has a subject-orientation. I claim that in addition to  $\phi$ -features, the C-T pair (but not the *v*-V pair) may be assigned the property [+multiple] in the sense of Hiraiwa (2001) as well as an uninterpretable unvalued  $\lambda$ -feature. The C-T pair with [+ multiple] undergoes Multiple AGREE with a reflexive and a subject; this yields their binding relation.

Let us consider (18) as an example:

(18) John<sub>1</sub>-ga [Mary<sub>2</sub>-ga [zibun<sub>1/2</sub>-no hahaoya]-o semeta to] itta (koto) John-NOM Mary-NOM self-GEN mother-ACC blamed C said (fact) 'John said that Mary blamed his/her mother.'

During its derivation, we construct the embedded CP phase. Suppose that the embedded C is assigned [+ multiple] and  $\lambda$ -feature, which are inherited by T. Given that an unvalued feature functions as a probe, T, which has unvalued  $\phi$ -features, functions as a probe. T has two matching goals, *i.e. Mary* and *zibun* 'self'. Since T also has [+multiple], it undergoes Multiple AGREE with these two matching goals as represented in (19a). Under the feature sharing approach, T, *Mary*, and *zibun* 'self' are linked with one another; they share the values of  $\phi$ -features, *i.e.* the values of *Mary*'s  $\phi$ -features [3, S, F] (3rd person, singular, feminine) as represented in (19b). As a result, *Mary* and *zibun* 'self' are interpreted as having a binding relation; *zibun* 'self' is interpreted as taking the embedded subject *Mary* as its antecedent. Note in passing that T and *zibun* 'self' also share the value of  $\lambda$ -feature, *i.e.* [Ref] of *zibun* 'self':

(19) a.  $[[[_{vP} Mary[3SF] [_{v'} [zibun[unvalued \phi, Ref] - no hahaoya] - o semeta] v] Mary self-GEN mother-ACC blamed$ 

T[unvalued φ, unvalued λ] [+multiple]] to] C Multiple AGREE

b.	$[[[_{vP} Mary[3SF] [_{v'} [zibun[3SF, Ref] - no hahaoya] - o semeta] v$		
	Mary	self-GEN	mother-ACC blamed
	T[3SF, Ref] to]		
	С		

When the embedded C is not assigned [+multiple], on the other hand, there is no way of licensing *zibun* 'self' within the embedded clause. The matrix C may be assigned [+multiple] and  $\lambda$ -feature, which are inherited by the matrix T. As represented in (20a), the matrix T undergoes Multiple AGREE with the matrix subject *John* and *zibun* 'self' within the embedded clause, given that AGREE does not obey the Phase Impenetrability Condition and thus can take place at a distance, as argue by Bošković (2007). This creates a long-distance binding relation between *John* and *zibun* 'self', as represented in (20b); *zibun* 'self' is interpreted as taking the matrix subject *John* as its antecedent:

# (20) a. $[[[_{\nu P} John[3SM] [_{\nu'} [Mary-ga [zibun[unvalued <math>\phi, Ref]$ -no hahaoya]-o John Mary-NOM self-GEN mother-ACC

semeta to] omotteiru] v] **T**[unvalued  $\phi$ , unvalued  $\lambda$ ] [+multiple]] C] blaimed C think | Multiple AGREE

b. [[[vP John[3SM] [v' [Mary-ga [zibun[3SM, Ref]-no hahaoya]-o Mary-NOM self-GEN mother-ACC semeta to] omotteiru] v] T[3SM, Ref] C] blamed C think

Note that elements with valued  $\phi$ -features intervening between the matrix T and *zibun* 'self' do not function as interveners for this long-distance AGREE, since, as argued by Chomsky (2001), the intervention effect is nullified unless intervention blocks matching of all features. The embedded subject *Mary*, for example, does not function as an intervener, since although the matrix T, being a probe, matches with the embedded subject *Mary* in  $\phi$ -features, the  $\lambda$ -feature of the matrix T does not match with *Mary*; T is free to seek a goal further.

#### 3.2 An analysis of the RCC effect

With the discussion of the previous subsection in mind, let us return to the RCC effect (2). During its derivation, we construct the embedded CP phase. Suppose that the embedded C has [+multiple] and  $\lambda$ -feature, which are inherited by T. One of the properties of Multiple AGREE is that when a phase head has [+multiple], it undergoes Multiple AGREE to *all* matched goals at the *same* derivational point (Hiraiwa 2001; cf. Chomsky's (2001) Maximization Principle). As represented in (21a), since the probe T with [+multiple] has three matching goals, *i.e. Mary* and the two instances of *zibun* 'self', T is required to undergo Multiple AGREE with all of the three goals. *Mary* and the two instances of

*zibun* 'self must share the values of *Mary*'s  $\phi$ -features, *i.e.* [3, S, F] (3rd person, singular, feminine) as represented in (21b). The two instances of *zibun* 'self' are interpreted as taking the embedded subject *Mary* as their antecedent; the ATB reading (3b) follows:





In the ATB reading (3a), the embedded C is not assigned [+multiple]. Instead, the matrix C is assigned [+multiple] and  $\lambda$ -feature. The matrix T, which inherits these features from C, undergoes Multiple AGREE with the matrix subject *John* and the two instances of *zibun* 'self' within the embedded clause as represented in (22a). *John* and the two instances of *zibun* 'self' must share the values of *John*'s  $\phi$ -features as represented in (22b); the ATB reading (3a) follows:



a. [[[<sub>νP</sub> John[3SM] [<sub>ν'</sub> [Mary-ga [zibun[unvalued φ, Ref]-no John Mary-NOM self-GEN imooto]-ni [zibun[unvalued φ, Ref]-no hon]-o watasita to] itta] ν] sister-DAT self-GEN ▲ book-ACC gave C said

T[unvalued  $\phi$ , unvalued  $\lambda$ ] [+multiple]] C]

\_\_\_\_ Multiple AGREE

b. [[[<sub>vP</sub> John[3SM] [<sub>v'</sub> [Mary-ga John Mary-NOM self-GEN sister-DAT [zibun[3SM, Ref]-no hon]-o watasita to] itta] v] T[3SM, Ref] C] self-GEN book-ACC gave C said The AGREE analysis can correctly rule out the mixed readings (3c, d) as represented in (23):



In (3c, d), one instance of *zibun* 'self takes the embedded subject *Mary* as its antecedent. The embedded T has [+multiple] so that T is required to undergo Multiple AGREE with all matching goals, including the other instance of *zibun* 'self'. Hence, there is no way that the other instance of *zibun* 'self' undergoes AGREE with the matrix T; it cannot take the matrix subject as its antecedent. The deviancy of the mixed readings (3c, d) follows.

# 4. Consequences

In the previous section, I have proposed an AGREE analysis of the RCC effect. In this section, I will show that our AGREE analysis of the RCC effect receives further support from 'blocking effects'.

## 4.1 The multiple nominative construction

First, the multiple nominative construction induces the 'blocking effect', as the contrast between (24a) and (24b) shows:

(24)a. John<sub>1</sub>-ga tyoosa iinkai-ni [[Mary<sub>2</sub>-no titioya]<sub>3</sub>-ga John-NOM investigation committee-DAT [Mary-GEN father]-NOM [zibun<sub>1/\*2/3</sub>-ga hatumeisita kusuri-ga genin-de] nyuuinsita to] [self-NOM discovered medicine-NOM cause-by hospitalized C hookokusita reported

Lit. 'John<sub>1</sub> reported to the investigation committee that [Mary<sub>2</sub>'s father]<sub>3</sub> was hospitalized due to medicine discovered by  $self_{1/*2/3}$ .'

b. John<sub>1</sub>-ga tyoosa iinkai-ni [Mary<sub>2</sub>-ga titioya<sub>3</sub>-ga John-NOM investigation committee-DAT [Mary-NOM father-NOM [zibun\*?1/2/3-ga hatumeisita kusuri-ga genin-de] nyuuinsita to] [self-NOM discovered medicine-NOM cause-by hospitalized C hookokusita reported

Lit. 'John<sub>1</sub> reported to the investigation committee that Mary<sub>2</sub>'s father<sub>3</sub> was hospitalized due to medicine discovered by  $self_{21/2/3}$ .'

In (24a), *zibun* 'self' within the embedded clause can take either the embedded subject or the matrix subject as its antecedent. However, in the multiple nominative construction (24b), where the embedded clause has two nominative subject phrases, *zibun* 'self' cannot take the matrix subject as its antecedent.

Based on the traditional insight that that T can license more than one nominative phrase in multiple specifiers or adjoined positions within one projection (see, among others, Saito 1982; Fukui 1986; Takezawa 1987; Heycock 1993; Koizumi 1994; Ura 2000), Hiraiwa (2001) argues that in the multiple nominative construction, T undergoes Multiple AGREE with more than one nominative phrase. In other words, the embedded T in (24b) has [+multiple]. It then follows that *zibun* 'self within the embedded clause is required to undergo AGREE with the embedded T. It cannot undergo AGREE with the matrix T; *zibun* 'self within the embedded clause cannot take the matrix subject as its antecedent. Hence, the 'blocking effect' in the multiple nominative construction follows.

#### 4.2 Subject honorification

Second, Aikawa (1993) observes that subject honorification induces the 'blocking effect' as shown in (25):

(25)a. Masao<sub>1</sub>-ga minna-ni [Tanaka-sensee<sub>2</sub>-ga [zibun<sub>1/2</sub>-no Masao-NOM everyone-DAT Prof. Tanaka-NOM self-GEN kodomo]-o sikatta to] hanasita (koto) child-ACC scolded C told (fact)
 'Masao<sub>1</sub> told everyone that Professor Tanaka<sub>2</sub> scolded self<sub>1/2</sub>'s child.'

b. Masao<sub>1</sub>-ga minna-ni [Tanaka-sensee<sub>2</sub>-ga [zibun\*?1/2-no Masao-NOM everyone-DAT Prof. Tanaka-NOM self-GEN kodomo]-o o-sikarini-natta to] hanasita (koto) child-ACC scolded[Subject Honorification] C told (fact) 'Masao<sub>1</sub> told everyone that Professor Tanaka<sub>2</sub> scolded self\*?1/2's child.'

In (25a), *zibun* 'self' within the embedded clause can take either the embedded subject or the matrix subject as its antecedent. However, in (25b), where subject honorification takes place in the embedded clause, *zibun* 'self' cannot take the matrix subject as its antecedent.

It has been claimed by, among others, Shibatani (1977), Toribio (1990), Ura (2000), and Hasegawa (2006) that subject honorification should be treated as an abstract subject-verb agreement. They claim that subject-verb agreement in subject honorification is mediated by some other category. I claim with Ura that subject-verb agreement is mediated by T. It then follows that if we adopt the system of AGREE to accommodate subject honorification, T undergoes multiple AGREE with subject and verb. The embedded T in (25b) has [+multiple] so that *zibun* 'self' within the embedded clause is required to undergo AGREE with the embedded T. Hence, the 'blocking effect' with subject honorification follows.

# 5. Conclusion

This paper has argued that the RCC effect straightforwardly follows from the properties of AGREE, presenting further evidence for AGREE analysis of anaphoric binding. It was shown that our AGREE analysis of the RCC effect should be preferred over previous analyses in that our analysis accounts for not only the RCC effect but also the 'blocking effects' induced by the multiple nominative construction and subject honorification, which remains unexplained under any previous analyses.

#### Notes:

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<sup>1</sup> Fuiji (2004) observes that there are examples where the RCC effect is overruled (Fujii 2004: 105, see also Richard 1996):

(i) **Taroo1**-wa [**Hanako2**-ga [**zibun2**-no heya]-kara **zibun1**-o mihatteiru to] omotteiru Taro-TOP Hanako-NOM elf-GEN room-from self-ACC is-watching C think 'Taro thinks Hanako is watching self from self's room.'

In (i), *zibun* 'self' can only take as its antecedent the matrix subject *Taroo* 'Taro', but not the embedded (local) subject *Hanako* 'Hanako'. As pointed out by Fujii, however, that *zibun* 'self' in (i) may not belong to a class of anaphoric expressions which we are dealing with. It has been claimed by, among others, Akatsuka (1976), Oshima (1979), and Aikawa (1993), that *zibun* 'self' in the direct

object position can take the local subject as its antecedent only when the predicate refers to an abstract activity as shown in (ii). When the predicate refers to a physical activity, on the other hand, it cannot take the local subject as its antecedent as shown in (iii):

- John1-ga zibun1-o nikundeiru/semeta (koto) (ii) John-NOM self-ACC hate/blamed (fact) 'John hates/blamed himself.'
- (iii) \*John1-ga zibun1-o nagutta/ketta (koto) John-NOM self-ACC hit/kicked (fact) 'John hit/kicked himself.'

This suggests that when zibun 'self appears in the direct object position of the predicate referring to a physical activity, it does not function as an anaphor but rather functions like a pronominal element. In (i), the embedded predicate mihatteiru 'is watching' refers to a physical activity so that zibun 'self' in the direct object position, being a pronominal-like element, cannot refer to the local subject Hanako. Hence, (i) does not constitute counterevidence against the RCC effect.

<sup>2</sup> (17b) only has the distributive meaning, *i.e.* John hates his teacher and Mary hates her teacher.

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