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Japanese Reflexive Zibun and Reflexivity Theory

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Thesis submitted to the school of Graduate Studies and Research in partial fulfillment of the requirement for the degree of Master of Arts in Linguistics

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ABSTRACT

This thesis explores the reflexivity approach to *zibun*-binding. The paradoxical nature of *zibun* as an anaphor and a pronominal has invited much debate, and the status of *zibun* is still an unsolved subject in the framework of a standard binding theory proposed by Chomsky (1981).

A reflexivity analysis proposed by Reinhart and Reuland's gives a satisfactory account of the Japanese reflexive *zibun* and its binding behavior. Under their analysis, *zibun* is categorized as a SE anaphor. The reflexivity refers to the function of marking two arguments of a verb as coreferential. When verbs are reflexive-marked, two arguments are coreferential. Then anti-locality of *zibun* can be explained with different verb types: one type is verbs which are intrinsically reflexive and the other is verbs which are not reflexive-marked.

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ABSTRACT

Reflexives and their behavior have been one of the most explored topics in Syntax. Japanese reflexives are no exception. Due to its unique properties, the Japanese reflexive and its binding behavior have attracted the attention of numerous linguists. This thesis explores the reflexivity approach to *zibun*-binding.

After the standard binding theory proposed by Chomsky (1981), many researchers have tried to figure out how *zibun* can be explained within the framework of the binding theory. There is, however, a limit in the standard binding theory, which contrasts lexical classes of anaphor versus pronoun. The paradoxical nature of *zibun* as an anaphor and a pronominal has invited much debate, and the status of *zibun* is still an unsolved subject. For this reason, *zibun* is seemed to categorize differently.

Reinhart and Reuland (1993) propose an alternative to the binding theory. They distinguish complex anaphors, SELF anaphors, from simplex anaphors, SE anaphors. They account for binding in terms of the interaction of two modules. One module consists two non-structural conditions defined over predicates: Condition A and B. The other module consists of a structural condition defined over a modified notion and A-chain: A-chain Condition. R&R's binding analysis is more accurate when explaining cross-linguistic binding fact than the standard binding theory.

R&R's reflexivity analysis also seems to give a satisfactory account of the Japanese reflexive *zibun* and its binding behavior. Being a simplex anaphor and sharing its features with others, *zibun* is considered as a SE anaphor. The nature of *zibun* lacking phi-features is responsible for subject orientation and Infl-locality constraint, as is the other SE anaphors.

The reflexivity refers to the function of marking two arguments of a verb as coreferential. When verbs are reflexive-marked, two arguments are coreferential. Then anti-locality of *zibun* can be explained with different verb types: one type is verbs which are intrinsically reflexive and the other is verbs which are not reflexive-marked. Being a SE anaphor, *zibun* is usually long distance bound. The only case where it is locally bound is where *zibun* occurs with an intrinsically reflexive verb.

Chapter 1 Introduction

1.0 Introduction

A universal treatment of reflexives across languages in the framework of generative grammar is always a controversial topic in syntax. Government and binding theory put forward by Chomsky (1981) is the greatest challenge to the universal treatment of reflexives and it contributes to binding facts in many languages. The standard binding theory[1], however, faces many counterexamples and does not account for all binding conditions. The Japanese reflexive *zibun* and its binding are one of the examples that are not explained within the framework of the standard binding theory.

Reinhart and Reuland (1993, henceforth R&R) propose new analysis for binding. They focus on the reflexivity of predicates, and claim that the interpretation of the predicate, not the reflexive itself, is the trigger of coreference. R&R succeed in solving cross-linguistic problems that arise with Chomsky's binding theory. We assume that the Japanese reflexive and its binding should be explained with R&R's binding analysis. This thesis provides an explanation of the Japanese reflexive *zibun* and its binding behavior.

There are many words to refer to the first person singular in Japanese; *watashi*, *watakusi*, *boku*, *ore*, and *zibun*. Although used in different contexts, *zibun* is often the preferred choice. When *zibun* occurs in utterances, it refers to the speaker most of the time. This is because *zibun* has the center perspective. In these cases, *zibun* behaves as a first person subject, equivalent to the English pronoun 'I'. The role of *Zibun* changes with different cases. It is used as a subject with the nominative case, as an object with the

[1] We call the binding theory in Chomsky (1981) 'the standard binding theory'.

accusative case and as a possessive with the genitive case. These various roles make the recognition of *zibun*-binding[2] complicated.

1.1. Japanese reflexives

There are three types of reflexives in Japanese: *kare-zisin* 'himself', *zibun-zisin* 'self-self' and *zibun* 'self'. *Kare-zisin* is the only reflexive which has phi-features[3]. *Zibun-zisin* and *zibun* lack them. These three reflexives are characterized as follows.

(1) a. kare-zisin: local anaphor with no particular orientation.
b. zibun-zisin: local anaphor with subject orientation.
c. zibun: long-distance anaphor with subject orientation. (Katada 1991)

Being local anaphors, *kare-zisin* and *zibun-zisin* must have their antecedents inside the clause that contains the anaphors themselves. *Zibun*, on the other hand, does not necessarily have to have its antecedent in the same clause. Moreover, being subject oriented, the antecedents of *zibun-zisin* and *zibun* have to be in the subject position.

(2) a. John$_i$-ga [Bill$_j$-ga Ken$_k$-ni kare-zisin$^{\bullet i/j/k}$ nituite hatasita to] itta.
J-Nom B-Nom K-Acc himself about told Comp said.
'John$_i$ said that Bill$_j$ told Ken$_k$ about himself$^{\bullet i/j/k}$'.

[2] *Zibun*-binding refers to the binding behavior of the reflexive zibun, and it does not concern the binding of other reflexives such as *kare-zisin* or *zibun-zisin*.
[3] Features of person, number or gender

b. John$_i$-ga [Bill$_j$-ga Ken$_k$-ni zibun-zisin$_{*i/j/*k}$ nituite hatasita to] itta.
J-Nom B-Nom K-Acc self-self about told Comp said.
'John$_i$ said that Bill$_j$ told Ken$_k$ about self$_{*i/j/*k}$'.

c. John$_i$-ga [Bill$_j$-ga Tom$_k$-ni zibun$_{i/j/*k}$ nituite hatasita to] itta.
J-Nom B-Nom T-Acc self about told Comp said.
'John$_i$ said that Bill$_j$ told Tom$_k$ about self$_{i/j/*k}$'.

In (2a), the subject of the embedded clause *Ziro* can be the antecedent of *kare-zisin*, since *kare-zisin* is a local anaphor and it cannot be bound to the subject of the main clause *John*, which is not in the same local domain. *Tom* in the non-subject position can also be an antecedent of *kare-zisin*, as it is in the same local domain, and also *kare-zisin* is not subject oriented unlike *zibun-zuisin* or *zibun*. Hence, *Tom* in (2b) and (2c) cannot be the antecedent of *zibun-zisin* or *zibun*, which are subject oriented anaphors. *Bill* in (2b) is the only antecedent of *zibun-zisin*, which is a local anaphor. On the other hand, being a long distance anaphor, *zibun* can have either *John* or *Bill* as its antecedent. Note that *kare-zisin* can refer only to the single male element, since *kare* 'he' specifies the feature. If *Mary*, being a female element, is in the position instead of *Bill* or *Tom*, *kare-zisin* cannot be bound by *Mary*. *Zibun-zisin* or *zibun*, which lack phi-features, can still refer to *Mary*.

Japanese employs the three reflexives with different properties. The morphologically simple anaphor *zibun* has attracted much more attention than the two other complex reflexives *kare-zisin* and *zibun-zisin* in Japanese syntax. This is due to its logophoric feature.

1.2. *Zibun*-binding phenomena

There are three main conditions of *zibun*-binding to be considered here: the logophoric condition, the antecedent c-command condition and subject orientation.

The first and the most important property of *zibun*-binding is that it can be bound either locally or long distance.

(3) Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/j}$-o kizutuketa to] itta.
T-Nom Ziro-Nom self-Acc hurt Comp said
'Taro$_i$ said that Ziro$_j$ hurt self$_{i/j}$'.

In (3), *zibun* can refer to either the subject of the main clause *Taro* or the subject of the embedded clause *Ziro*. When the antecedent of *zibun* is outside the clause which *zibun* belongs to, the reflexive is called a long distance *zibun*.

The second property of *zibun*-binding is called the antecedent c-command condition. This feature of *zibun*-binding is that *zibun* must be c-commanded by its antecedent.

(4) a. [Taro$_i$-no sensei]$_j$ –ga zibun•$_{i/j}$-o hihansita.
T-Gen teacher-Nom self-Acc criticized
'[Taro$_i$'s teacher]$_j$ criticized himself•$_{i/j}$'.
b. [John$_i$'s teacher]$_j$ criticize himself•$_{i/j}$.

In (4), *Taro*, being embedded in the subject NP, does not c-command *zibun*, but the whole NP *zibun-no sensei* does. Unlike other features, the c-command condition of *zibun* is shared with the English reflexive *himself* as shown in (4b). When *zibun* or *himself* finds its antecedent within the sentence, it observes the c-command requirement.

The condition of subject orientation has been much discussed in the literature. It has been noted that there are some examples that violate the subject-antecedent condition, though it was assumed that an antecedent of *zibun* must be a subject in Japanese, as can be seen in (5). *Zibun* in the embedded clause can take either the embedded subject or the matrix subject as its antecedent, i.e., either *Taro* or *Hanako* can be the antecedent of *zibun* in (5). On the other hand, *Ziro*, as it is not a subject, cannot be the antecedent of *zibun*.

(5) Taro$_i$-ga Ziro$_j$-ni [Hanako$_k$-ga zibun-$_{i/*j/k}$-o hihansita] to it-ta.
T-Nom Z-Gen H-Nom self-Acc criticized Comp said
'Taro$_i$ told Ziro$_j$ that Hanako$_k$ criticized self $_{i/*j/k}$'.

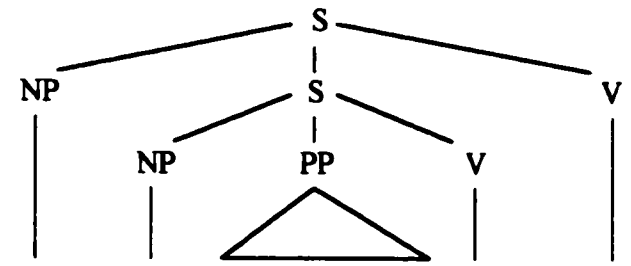
There are, however, some cases where a non-subject is a possible antecedent. One of the cases is in causative sentences.

(6) Taro$_i$-ga Hanako$_j$-ni zibun$_{i/j}$-no heya-de benkyou sase- ta.
T-Nom H-Dat self-Gen room-in study CAUSE-Past
'Taro$_i$ made Hanako$_i$ study in self's $_{i/j}$ room'.

The interpretation of *zibun* in (6) is ambiguous. Not only the subject *Taro* but also the non-subject *Hanako* can be an antecedent of *zibun*. It is assumed that the Japanese causative structure is underlyingly complex (Inoue1973 and Kuno 1973). There is an explanation that possible antecedents are 'subject' at the same level and the rule of

reflexivization is optionally applied in each cycle containing the subject. For instance, the sentence (6) has the underlying structure as in (7).

(7)



(Iida 1996 with modification)

If the rule of reflexivization applies to the higher cycle, *zibun* is bound to Taro. On the other hand, if the rule of reflexivization applies to the lower cycle, *zibun* is bound to *Hanako*, which is not the subject in the surface structure.

Another case violating the subjecthood condition[4] arises with so-called psych(ological)-verb[5] case (Akasuka 1969 and Kuno 1973). The psych-verb *kanasimaseru* is used in the example (8).

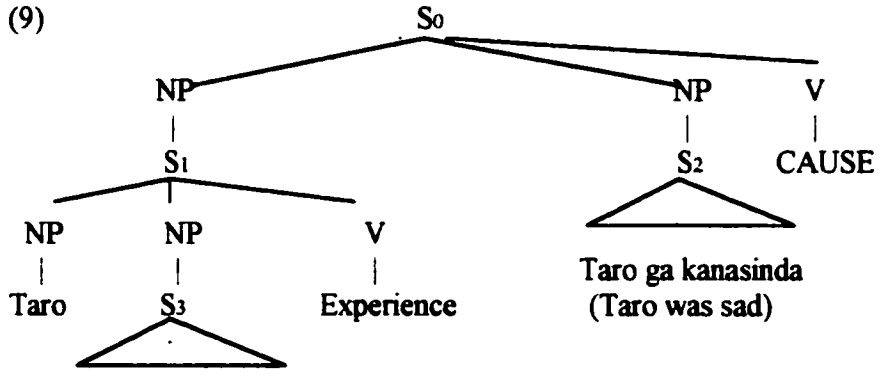
(8) Zibun$_i$-ga bakana koto- ga Taro$_i$-o kanasi-mase-ta.
Self-Nom fool that -Nom T-Acc sad-make-Past
'The fact that he was a fool saddened Taro'. (Kuno 1973: 314)

[4] The subjecthood condition is the same as the subject-antecedent condition. An antecedent of a reflexive has to be a subject.

[5] Psych-verbs in English are verbs such as 'admire', 'enjoy', 'fear', 'love', 'amuse', 'frighten', 'please' and 'worry'.

In (8), the object of *Taro* is the antecedent of *zibun*. It is a violation of the subjecthood condition as well as the c-command condition of binding. Apparently, *Taro* does not c-command *zibun*. Cross-linguistically, since Postal (1970, 1971), an anaphor inside the subject of a psych-verb with an experiencer object can take the object as its antecedent, violating the c-command condition of binding[6]. There is a hypothesis that considers psych-verbs as causative (Pesetsky 1995, Iwata 1995, Cançado 1999). They argue that the object argument of psych-verbs may be thematically characterized as 'causer'. *Taro* (8) would be a causer of the verb 'kanasimaseru'. If we consider psych-verbs as causative, the causative case would be the only violation of or exception to subjecthood in Japanese. McCawley (1976) explains the nonsubject antecedent in (8) syntactically. She also assumes that sentences with psych-verbs are causative, and proposes a deep structure shown in (9).

(9)



(Iida 1996)

[6] See Giorgi 1984, Lebeaux 1985, Belletti & Rizzi 1988 for discussions of this violation of the c-command condition of binding.

According to McCawley, *zibun*-binding is acceptable here, since it satisfies the subjecthood condition. The subject of the subject complement and the subject of the object complement must be coreferential. *Taro* in the sentence (8) is the subject in a deep structure, resulting in the grammaticality of the sentence. Thus, the nonsubject antecedents in causative sentences seem to be accounted for in *zibun*-binding.

1.3. Organization of the thesis

Chapter 2 begins with observation of the standard binding theory by Chomsky (1981). Though it is a remarkable analysis, the binding theory does not account satisfactorily for all of the binding facts. The binding theory is based on three different types of NPs: anaphors, pronouns and R(referential)-expressions. Chomsky claims that these three expressions differ in whether they have their antecedents in the same clause or not. The minimal clause containing these expressions is called a local domain, which causes counterexamples in many languages, including Japanese. Many studies have been done, trying to explain these counterexamples within the framework of the binding theory. Despite this work, many problems remain unsolved.

R&R (1993) develop the reflexivity analysis to solve these problems. In Chapter 3, we will discuss binding conditions with the reflexivity analysis. R&R divide reflexives into two types: morphologically simplex anaphors, SE anaphors, and complex anaphors, SELF anaphors. R&R formulated the binding condition with syntax-semantic interfaces. They pay attention to predicates rather than anaphors, arguing that predicates license reflexivity.

Chapter 4 contains an analysis of *zibun*-binding. Since *zibun* seems to behave like a SE anaphor, R&R reflexivity analysis may explain *zibun*-binding phenomena. *Zibun* behaves as either an anaphor or a pronominal in the standard binding theory, which is problematic. Through an analysis of the nature of the predicate, and not *zibun* itself, it may possible to find an answer to why *zibun* can be either locally or long distance bound.

Finally Chapter 5 examines *zibun*-binding from an acquisition perspective. If the claim that different types of predicates play an important role in *zibun*-binding is correct, children will learn the difference at the same time when they learn the use of *zibun*. An experiment was conducted to investigate the acquisition of *zibun* to support the reflexivity analysis.

Chapter 2 Chomsky's binding theory and related problems

2.0. Introduction

Chomsky (1981) proposes a theory of binding as a part of a universal treatment of NPs in the framework of generative grammar. However, due to variation found in a great variety of languages, the binding theory faces some problems, and it fails to account for the full range of binding facts. Since the standard binding theory depends on English data, counterexamples arise in many languages. Among them, the Japanese reflexive *zibun* behaves differently from English reflexives, such as *himself*.

The aim of this chapter is to examine the binding theory and its parameters, and consider the problems for the theory. Section 1 discusses the standard binding theory and related problems. We will see the problems both in English and Japanese. The binding theory is based on English data, but there still remain some binding facts that are not explainable within the theory. The problems in English and Japanese are somewhat different from one another. Japanese *zibun*-binding behaves differently from the binding of English reflexives, as we have seen. *Zibun* acts like both an anaphor and a pronoun in Chomsky's typology. There are several examples in the literature that consider binding theory and try to figure out how it applies to *zibun*. In section 2, we will discuss the literature that explains *zibun*-binding within the framework of the standard binding theory. Finally, I will introduce the notion of SELF and of SE anaphor, which seems to provide a new approach for *zibun*.

2.1. Background

Binding theory, developed by Chomsky (1981), concerns the distribution of three types of NPs: anaphors, pronominals and R(eferential)-expressions. This standard binding theory is illustrated simply in (10).

(10) Principle A: An anaphor must be bound in its local domain.
Principle B: A pronominal must be free in its local domain.
Principle C: An R-expression must be free.

These three principles above impose the definition of binding, given in (11).

(11) α is a potential binder for β if α c-commands β, and α and β are coindexed.

An NP can be an eligible antecedent for anaphor, where coindexing is free, if and only if the NP c-commands that anaphor in the binding domain. The binding domain comes from the definition of a Governing Category.

(12) Governing Category:
β is a governing category for α if and only if β is the minimal category containing α, a governor of α, and a SUBJECT accessible to α.

SUBJECT denotes the grammatical subject, the overt lexical Specifier of an NP or, for a tensed sentence, the subject-predicate agreement element Agr. In many cases, the governing category for α is the minimal category containing α, the category that

subcategorized for α, and either a subject or Agr. The governing category is often the minimal NP or S in which α appears.

Let us consider the standard binding theory with English examples.

(13) a. John$_i$ thinks that Mary$_j$ loves herself$_i$/*her$_i$.
b. John$_i$ thinks that Mary$_j$ loves *himself$_j$/him$_j$.
c. He$_i$ thinks that Mary loves John*$_i$.

In (13a) only *herself* that is locally bound by *Mary* in the same clause is acceptable. The governing category for *herself* is the entire embedded clause, since that is the minimal category containing herself, its governor *loves*, and an accessible SUBJECT, the agreement element Agr of *loves*. In this domain, *Mary* and *herself* must be coindexed. The pronoun *her* cannot appear, since it has to be free in its governing category. On the other hand, only *him* can appear in the sentence (13b), since *him* is free in its governing category, which is the subordinate clause. *Himself* in this sentence is not bound by John in the domain, so it is unacceptable. In (13c) *John* cannot be co-indexed with the subject *he*, because *John*, as a R-expression, has to be free not just in its governing category, but in the whole sentence. The standard binding theory is licensed in English as shown in these examples.

2.1.1. Problems with the standard binding theory in English.

Nouns and preposition, as well as verbs, can form predicates. This is problematic for the standard binding theory. In Chomsky's binding analysis, anaphor and pronominals are not in complete complementary distribution. However, both principle A and B can operate in NPs in (14) and (15).

(14) a. Lucy$_i$ saw a picture of her$_i$.
b. Lucy$_i$ saw a picture of herself$_i$.

(15) a. Max$_i$ saw a ghost next to him$_i$.
b. Max$_i$ saw a ghost next to himself$_i$.

Why are both anaphors and pronouns grammatical in these sentences, though they are in general not allowed in the same position? The NP [picture of herself] is not a governing category, since it does not contain a SUBJECT. Agr is a SUBJECT and the entire sentence is the governing category. From this point of view, only *herself*, which is bound in its governing category, should be grammatical, but then the grammaticality of (14a) is problematic. Likewise, sentence (15a) is a problem. Both for a pronominal *him* and for an anaphor *himself*, the governing category is not the PP, where there is no Agr, but the entire sentence. Thus the standard binding theory does not explain the grammaticality of (14a) and (15a). The standard binding theory has certain problems explaining binding conditions not only in English but also in other languages. Among them, data from the Japanese reflexive *zibun* provide a counterexample to the standard binding theory.

2.1.2. Problems with the standard binding theory in Japanese

According to the standard binding theory, anaphors must be bound within the minimal maximal projection which contains that anaphor, a governor for the anaphor and a subject or Agr accessible to the anaphor, while pronouns must be free in this domain. A Japanese reflexive *zibun* in the example below violates this domain, and has its antecedent outside of the domain.

(16) Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/j}$-o hihansita] to omotteiru.
T-Nom Z-Nom self-Acc criticized Comp think
'Taro$_i$ thinks that Ziro$_j$ criticized self$_{i/j}$'.

Here, *zibun* can refer to either the matrix subject *Taro* or the embedded subject *Ziro*. Thus, both of the indexes in *zibun*-binding are acceptable.

When *zibun* is locally bound by its antecedent, it is considered to behave like an anaphor and Principle A applies. However, when *zibun* is not locally bound, it is considered a pronoun and Principle B is applied. Thus, the standard binding theory does not apply to the Japanese reflexive *zibun*.

2.2. Studies of *zibun*-binding

Zibun-binding does not simply always obey one of either Principle A or Principle B of the standard binding theory, as have been shown. In order to fit the explanation of the long distance *zibun* within the standard binding theory, many efforts have been made to modify or expand the idea of binding.

Two major syntactic analyses have been explored. One is based on the assumption that *zibun* acts as a pronominal (Fukui 1984, Ueda 1986, among others), and the other is based on the assumption that *zibun* acts as an anaphor (Katada 1991, Aikawa 1993, among others). Both of these approaches try to analyze *zibun*-binding within the framework of the standard binding theory.

2.2.1. *Zibun* as a bound pronominal

One of the analyses within the framework of the standard binding theory considers *zibun* as a bound pronoun (Fukui 1984 and Ueda 1986). Fukui claims that *zibun* must be bound by the closest A' binder. His analysis states that the subject of Japanese is in an A' position, and therefore *zibun* must be bound by the closest subject. He explains local binding of *zibun* shown in (17) with this hypothesis. Being a subject, *Taro* in sentence (17) is in the A' position and it is the closest A' binder of *zibun*.

(17) Taro$_i$-ga zibun$_i$-o hihansita.
T-Nom self-Acc criticized
'Taro$_i$ criticized self$_i$'

In his analysis, Fukui assumes that a subject of a complement clause is in an A position, whereas a matrix subject or a subject of an adjunct clause is in an A' position, when long distance binding of *zibun* is concerned. This analysis is, however, problematic.

(18) Taro$_i$-wa [Hanako-ga zibun$_i$-o hihansita to] sinjiteiru.
T-Top H-Nom self-Acc criticized Comp believe
'Taro$_i$ believes that Hanako criticized self$_i$'.

Hanako in (18) is in the A-position, as it is a subject of the embedded clause, while *Taro*, being a subject of a main clause, is in the A' position. Therefore, *Taro* is the closest A' binder of *zibun*, which leads to grammaticality of long distance binding. *Hanako* is ruled out of *zibun*-binding in Fukui's analysis. However, for most Japanese speakers, *Hanako* is a possible antecedent of *zibun* in the sentence (18). This could be a potential problem of Fukui's analysis.

Ueda (1986) has the same analysis as Fukui in the sense that *zibun* functions as a bound pronoun. He argues that pronominals are divided into two types; bound pronominals and non-bound pronominals. Japanese has both types of pronominals. *Zibun* is the one example of a bound pronominal, as is *kare* 'he', which does not have a [+bound] feature.

(19) a. Daremo$_i$-ga [zibun$_i$-ga sono siken-ni gokakusuru to] sinziteiru.
everyone-Nom self-Nom that exam.-Dat pass Comp believe

b. *Daremo$_i$-ga [kare$_i$-ga sono siken-ni gokakusuru to] sinziteiru.
everyone-Nom he-Nom that exam.-Dat pass Comp believe
'Everyone$_i$ believes that he$_i$ will pass that exam'.

The quantifier phrase does not refer to any specific individuals. Pronouns cannot be coreferential with the quantifier phrase unless they have a [+bound] feature. *Zibun* in

(19a) is considered as having a [+bound] feature, resulting in grammaticality. On the other hand, *he* cannot be coreferenced with the quantifier phrase, considering it is not a bound variable.

Since Ueda hypothesizes that *zibun* behaves as a pronoun, there is a problem, concerning local binding of *zibun* such as in example (17). As Kim (1993) also points out, Ueda's hypothesis fails to explain the lack of or the presence of Principle B effect of the standard binding theory.

2.2.2. *Zibun* as an anaphor

Aikawa explores a LF analysis of *zibun*-binding. *Zibun* lacks phi-features, but it must receive phi-features to be interpreted (Bouchard 1984). In order to get the phi-features, *zibun* needs to adjoin to I where it inherits the subject features (Reinhart & Reuland 1991,1992). Following these hypotheses, Aikawa suggests that *zibun* is associated with Agr, which is the only head that can provide phi-features for *zibun*. *Zibun* is bound to the first accessible Agr at LF, and Agr receives the index of the subject NP through spec-head agreement. She agrees with Chomsky (1992) that morphological features must be checked off by the head of a functional category through spec-head agreement at LF and, in the case of the subject, its features must be checked in the spec of Agr.

Aikawa argues that long distance binding of *zibun* is done on the basis of the mechanism of Agr-chain, which is put forward by Progovac (1992). Agr's in Japanese are anaphoric to each other and that they can form an Agr-chain. *Zibun* will be bound to

the local Agr, obeying the relativized Principle A of the bindirg theory. Another example (20) is given by Aikawa (1999).

(20) a. John$_i$-ga [Bill$_j$-ga Mary$_k$-ni zibun$_{i/j/*k}$-no koto-o hanasita to] omotteiru.
J-Nom B-Nom M-Dat self-Gen things-Acc told Comp think
'John$_i$ thinks that Bill$_j$ told Mary$_k$ things about self$_{i/j/*k}$'

b. [John$_i$ Agr2 [Bill$_j$ Agr-1 Mary$_k$ zibun$_{i/j/*k}$ V] V]

Agr-chain *Zibun*-binding to the first accessible Agr

(Aikawa 1999 with modification)

The index of *Bill* is assigned to Agr 1 through spec-head agreement and *zibun*, being bound to Agr1, receives this index, resulting in the grammaticality of *zibun*-binding to *Bill*. On the other hand, the grammaticality of long distance binding to *John* involves the Agr-chain. If the local Agr1 is bound to the next higher Agr2, by transitivity, *zibun* will also be bound to Agr2, and coindexed with both of the subjects (Progovac 1993). Mary cannot be an antecedent of *zibun*, since Mary is not in spec of Agr1, and its index is not assigned to Agr1.

Thus this LF analysis seems to resolve the problems of *zibun*-binding. However, this analysis is not without its own problems. As is the case with the problems of the analyzes by Fukui (1984) and Ueda (1986), Aikawa's analysis fails to explain the complementarity of local and long distance *zibun*. Other examples are given in (21) and (22).

(21) a. Taro$_i$-ga zibun$_i$-o hihansita.
T-Nom self-Acc criticized
'Taro$_i$ criticized self$_i$'.

b.*Taro$_i$-ga zibun$_i$-o ketta.
T-Nom self-Acc kicked
'Taro$_i$ kicked self$_i$'.

c. [Taro$_i$ Agr$_i$ self$_i$ V]

(22) a. Taro$_i$-ga [Ziro$_j$-ga zibun $_{i/j}$-o hihansita to] itta.
T-Nom Z-Nom self-Acc criticized Comp said
'Taro$_i$ said that Ziro$_j$ criticized self$_{i/j}$ '.

b. Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/*j}$-o ketta to] itta.
T-Nom Z-Nom slef –Acc kicked Comp said
'Taro$_i$ said that Ziro$_j$ kicked self$_{i/*j}$'.

c. [Taro$_i$ Agr2 [Ziro$_j$ Agr1 zibun V] V]

In the both simplex sentences (21) and the complex sentences (22), the LF structure is the same, as shown in (21c) and (22c). Therefore the grammaticality of these pairs of sentences should be the same, following Aikawa's analysis. However, as the examples are examined further, this is not found to be the case. Since Aikawa treats *zibun* as an anaphor, it follows Principle A of binding theory, where only local binding of reflexives is allowed. In this case, sentences (21a) and (22a) are satisfied, resulting in grammaticality of coindexing. When we come to (21b) and (22b), Aikawa's analysis cannot explain the ungrammaticality of the local binding of *zibun*.

Another problem with Aikawa's analysis is that the non-subject binding of *zibun* would be incorrectly ruled out. The following example highlights this.

(23) Taro$_i$-ga Ziro$_j$-ni zibun$_{i/j}$-no heya-de benkyo-sase-ta.
T-Nom Z-Dat self-Gen room-in study-CAUSE-Past
'Taro$_i$ made Ziro$_j$ study in self $_{i/j}$'s room'.

According to Aikawa, *zibun* can be associated with Agr and so it is coindexed with the subject NP. *Zibun* in (23) is coindexed with the subject NP *Taro*, following Aikawa's analysis. This works properly. The problem is that the non-subject NP *Ziro* can also be an antecedent of *zibun* in (23). There is no Agr associated with *Ziro*, so there is no way to be an antecedent of *zibun* in Aikawa's analysis.

We have seen studies of *zibun*-binding within the standard binding theory. The application of Principle A and B is limited to the binding domain. It does not apply to *zibun*-binding, which is allowed to be involved in either local or long distance binding. There are two completely opposite approaches towards *zibun*-binding. One is the approach based on the analysis that *zibun* behaves like a bound pronominal (Fukui 1984 and Ueda 1986), and the other is that *zibun* behaves like an anaphor (Aikawa 1993). Both of the analyzes, however, do not satisfy all of the binding facts.

The problems of Fukui and Ueda's analysis is that they do not explain the local binding of *zibun*, since they consider zibun as a bound pronominal, which must be long distance bound.

Aikawa's analysis explains the local binding, considering *zibun* as an anaphor. Aikawa also tries to explore long distance binding of *zibun* by associating *zibun* to Agr at

LF. This analysis works well in some cases, but it does not explain the ungrammaticality of some cases of local binding. Another problem of Aikawa's analysis is non-subject binding of *zibun*. In her analysis, *zibun* associates with Agr to get phi-features, therefore *zibun* has to be subject oriented. However, as shown in example (23), there is a case where *zibun* has a non-subject antecedent.

2.3. SE anaphor and SELF anaphor

Having examined three analyses of *zibun*-binding within the standard binding theory, it has been demonstrated that they have problems, and are therefore inadequate. Is a purely syntactic approach insufficient to explain *zibun*-binding? There are analyzes that rely on both pragmatic and syntactic factors (Kuroda 1973, Kuno 1972, 1976, 1978, Kuno & Kaburaki 1977, Kameyama 1985, Iida 1996 among others) The effect of non-syntactic factors in reflexive binding is discussed extensively in other languages as well (Clements 1975, Hyman & Comrie 1981, Sells 1987, Sigurðsson 1992, Pollard and Sag 1992, Huang 1994, among others). These non-syntactic analyzes are mostly language specific, and thus they would be inadequate as far as universal grammar is concerned.

Pure syntax must be able to solve all binding problems and satisfy a universal treatment of reflexives across languages formulated in the framework of generative grammar. The standard binding theory, which was thought to reflect universal grammar, is problematic, as demonstrated. The reason that problems arose was because the standard binding theory was developed mainly on the basis of English data. In order to derive

accurate binding properties, consideration must be given to reflexives in different languages.

Let us look at the examples in different languages below.

(24) Icelandic

Jón$_i$ sagði þeim [að María elski (subj) sig$_i$].
told them that love 3sg self
'Jón$_i$ told them that María loves self$_i$' (Pica 1991: 119)

(25) Danish

Julia$_i$ bad Ida$_j$ om [PRO$_i$ at præsebtere sig$_{i/j}$]
asked about introduce self
'Julia$_i$ asked Ida$_j$ to introduce self$_{i/j}$' (Jakubowicz 1994:200)

(26) Norwegian

Jon$_i$ hørte meg snake om seg$_i$.
heard me talk about self
'Jon$_i$ heard me talk about self$_i$'. (Richards 1995)

(27) Chinese

Zhangsan$_i$ shuo [Wangwu$_j$ zhidao [Lisi$_k$ chang piping ziji$_{i/j/k}$]]]
said knew often criticize self
'Zhangsan$_i$ said that Wangu$_j$ knew that Lisi$_k$ often criticized self $_{i/j/k}$'
(Huang & Tang 1991)

(28) Japanese (=(16))

Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/j}$-o hihansita] to omotteiru.
T-Nom Z-Nom self-Acc criticized Comp think
'Taro$_i$ thinks that Ziro$_j$ criticized self$_{i/j}$'.

According to the standard binding theory, anaphors must be bound within the minimal maximal projection that contains that anaphor, a governor for the anaphor and a subject or Agr accessible to the anaphor, while pronouns must be free in this domain. The reflexives in the examples above- *sig* in Icelandic and Danish, *seg* in Norwegian, *zizi* in Chinese and *zibun* in Japanese- violate this domain, and have their antecedent outside of the domain. These reflexives are called long distance anaphors.

Those long distance anaphors share some features. All of the anaphors in the examples from (24) to (28) are morphologically simplex, and they lack phi-features. R&R (1991, 1992) divide anaphors into two types on the basis of their function: morphologically simplex anaphors, SE anaphors, and complex anaphors, SELF anaphors. R&R argue that SE anaphors including *sig* in Icelandic and Danish, and *zich* in Dutch, lack phi-features and are usually long distance bound, while SELF anaphors including *himself* and *zichzelf* in Dutch possess phi-features and are locally bound.

One of the prominent features of SE anaphors is that they lack phi-features. In order to acquire phi-features, they need to associate with an element that carries them. R&R argue that SE anaphors should associate with Agr, which c-commands the anaphor and inherits the subject's feature. This lack of phi-feature contributes to subjecthood and their Infl locality. Aikawa's analysis (1993) is based on this idea. As shown above, it is plausible for *zibun* to associate with the first accessible Agr.

Following R&R's division, *zibun*, unlike English anaphors such as *himself*, is similar to its counterparts in Icelandic and Danish. They are usually long-distance anaphors, but that *zibun* also behaves as a local anaphor with certain verbs.

The typology of anaphoric expression given by R&R (1993) is shown in (29).

(29)	SELF	SE	Pronoun
Reflexivizing function	+	-	-
R(eferential independence)	-	-	+

R is a purely syntactic property, which is a necessary condition for an expression to function as an independent argument. The property of R is defined as (30).

(30) An NP is +R iff it carries a full specification for phi-features and structural case.

R&R consider +R elements are essentially R-expressions in the GB framework (by Chomsky 1981) and also pronouns. SELF and SE anaphors do not have a full specification for structural case and are therefore –R.

According to R&R's analysis, only SELF anaphors, and not SE anaphors, function as reflexivizers. The function of a reflexivizer is to impose identity between coarguments of a predicate. Let us look at an example in Dutch, where there exist both a SELF anaphor such as *zichzelf* and SE anaphor such as *zich*.

(31) a. Max$_i$ haat zichzelf$_i$.
hate SELF
b. *Max$_i$ haat zich$_i$.
hate SE
'Max$_i$ hates self$_i$'.

The occurrence of *zichzelf* can license the reflexive interpretation of the predicate, while the occurrence of *zich* cannot. The same is true for Japanese reflexives.

(32) a. Taro$_i$-ga zibun-zisin$_i$-o kiratteiru.
T-Nom SELF -Acc hate

b. *Taro$_i$-ga zibun$_i$-o kiratteiru.
T-Nom SE -Acc hate
'Taro$_i$ hates self$_i$'.

It seems plausible that *zibun* is considered to be a SE anaphor, comparing the sentence in (32) to the Dutch example in (31).

R&R propose a new binding condition based on these different types of reflexives. Their binding analysis will be presented in the next chapter. If *zibun* is a SE anaphor, R&R's binding condition will apply to *zibun*-binding.

Chapter 3 Approach to Reflexivity

3.0. Introduction

The definition of the local domain seemed to be problematic in Chomsky's analysis. R&R (1993) explore a new approach towards binding theory, considering the local domain with the coargumenthood of the arguments of a predicate, rather than with the syntactic domain. In this chapter, R&R's analysis will be reviewed, along with other analyses related to it. Lidz analyzes coargumenthood from different perspective. He proposes new reflexives, called verbal reflexives on the based of data from Kannada.

Section one examines the binding analysis by R&R, namely reflexivization of predicates. Then, section 2 demonstrates reflexivization in two languages, Icelandic and Danish. Here we examine different types of verbs in these languages, and whether these verbs are intrinsically reflexive or not. Further discussion of intrinsically reflexive verbs is presented in section 3. Finally, in section 4, Lidz's analysis is discussed.

3.1. Reinhart & Reuland's analysis

According to R&R's analysis, binding is not directly concerned with the relative distribution of anaphors and pronominals, but rather with the conditions on the licensing and the interpretation of reflexive predicates. Based on these conditions of predicates, they formulate new binding conditions as follows.

(33) Binding Conditions

Condition A:

A reflexive-marked syntactic predicate is reflexive.

Condition B:

A reflexive semantic predicate is reflexive-marked.

Reflexive marking and reflexive predicate are defined in (34).

(34) a. A predicate (formed of P) is reflexive-marked iff either P is lexically reflexive or one of P's arguments is a SELF anaphor.

b. A predicate is reflexive iff two of its arguments are coindexed.

Let us consider the examples below.

(35) a. Lucy$_i$ saw a picture of her$_i$/herself.

b. Max$_i$ saw a ghost next to him$_i$/himself.

The complementarity of pronouns and anaphors is problematic in the standard binding theory as shown in the last chapter. Whenever a pronoun or an anaphor is a coargument of a verb together with its antecedent, the complementarity remains.

(36) Max$_i$ criticized himself/ *him$_i$.

It is possible to make the generalization with (35) and (36) that pronouns are disallowed, when it and its antecedent are coarguments. In (36), the predicate is *criticize*, and its two

arguments *Max* and *himself* are coindexed. This coindexing reflexivizes the predicate. Therefore only the anaphor is applicable. On the other hand, the pronouns and anaphors in (35) are not coarguments together with their antecedent, and condition B fails to apply. Hence, the appearance of both SE anaphor and SELF anaphor are acceptable.

Binding conditions by R&R also explain the logophoric use of anaphors as in (37) and (38). There arises a question as to why the (b) sentences of (37-38) are acceptable, whereas the (a) sentences are not. The difference between the (a) and (b) sentences of (37-38) is the position of the reflexives. In the (a) sentences, the reflexives are in the argument positions of the predicate, while they are not in these positions in the (b) sentences. Because Condition A of R&R's binding analysis is defined over syntactic predicates and because only reflexives that are arguments of a syntactic predicate can reflexive-mark the predicate, reflexives that are not arguments of a syntactic predicate are exempt from Condition A. These reflexives can appear freely and are only restricted by discourse conditions of accessibility. Thus, the (a) sentences of (37-38) are accepted by Condition A.

(37) a. There are 5 tourists in the bedroom apart from himself.
b. *Five tourists talked to myself in the room.

(38) a. Physicians like yourself are a godsend.
b. *A famous physician has just looked for yourself.

Example (39) considers Dutch reflexives with R&R's analysis, where the SE anaphor *zich* exists as well as the SELF anaphor *zichzelf*.

(39) a. Max$_i$ haat zichzelf$_i$.
hates SELF
b. *Max$_i$ haat zich$_i$.
hates SE

In (39a), the arguments of the predicate *haat* are coindexed and one of them is the SELF anaphor *zichzelf*, making the predicate reflexive-marked. Therefore the sentence satisfies both Condition A and B. However, (39b) is ruled out, where the reflexive predicate is not licensed, with respect to Condition B. The predicate is reflexive (two arguments are coindexed), but it is not reflexive-marked. Unlike (39b), *zich* is allowed to appear in some cases such as (40), even though the structures of the sentences are the same.

(40) a. Max$_i$ wast zich$_i$.
washes SE
b. Max$_i$ schaamt zich$_i$.
shames SE

R&R argue with Everaert's analysis (1986, 1991) that the occurrence of the SE anaphor *zich* depends on the inherent properties of the verbs. Verbs like *wast* and *schaamt* are intrinsically reflexive[7]. These verbs do not take any object distinction in reference to the subject. Their reflexive entry allows for an SE anaphor, and their transitive entry occurs with a SELF anaphor. The verb *haat* does not have an intrinsic reflexive entry, and the SE anaphor *zich* is not allowed. In contrast, *wast* and *schaamt* are intrinsically reflexive

[7] Everaert (1991) argues that intrinsically reflexive verbs are lexically specified as having an internal thematic role coindexed with the subject thematic role, while the verb is, at the same time, specified to project a syntactic position. As a result, the object position is necessarily occupied by *zich* in Dutch, which can be θ-linked to the lexically saturated θ-role.

and based on the definition in (34), the verb (P) is lexically reflexive. Thus in (40), the sentence meets Condition B due to the reflexive-marked reflexive. The reflexivity of a predicate can be licensed by the intrinsic reflexivity of the predicate.

Condition B, however, does not provide an exhaustive account of anaphor binding within a semantic predicate. That is why it does not account for the grammaticality of the sentence in (41).

(41) *Himself$_i$ criticize Max$_i$/him$_i$.

The predicate *criticize* should be reflexive-marked because its arguments are coindexed and also one of the arguments is a SELF anaphor. In this sense, the condition of the sentence (41) is the same as (36), which is a grammatical sentence. Facing this problem, R&R appeal to the Chain Condition. It constrains a sequence of coindexed A-positions. In (42) we have a definition of the Chain Condition (43).

(42) Definition of the Chain Condition:
A maximal A-chain is any sequence of (two or more) coindexed elements which is headed by an A-position and satisfies the antecedent government.

(43) A maximal A-chain (α_1, ..., α_n) contains:
a. exactly one link $-\alpha_i$, which is both +R and marked for structural Case:
b. exactly one theta-marked link.

As shown in the last chapter, an NP is +R if and only if it carries a full specification for phi-features and a structural case. The A-chain in (41) is ruled out by the Chain

Condition, because its α_1 link is a SELF anaphor, which does not carry full specification for structural case. Hence, the chain is not properly headed by a +R link.

Recall the typology of anaphoric expressions in (29) and Condition B in (33). Pronouns and SE anaphors are indistinguishable with respect to Condition B. The Chain Condition is able to distinguish them. In some simple cases, Condition B and the Chain Condition appear to produce an identical result. They are, however, not redundant. An anaphor can sometimes be ruled out as ungrammatical by one condition and not by the other. The ill-form nature of the sentence (41) is explained with the chain condition: (41) is ungrammatical because the chain <himself, Max/him> is a [-R] element. Likewise, the example of a SE anaphor in Dutch, given in (44), is ruled out by the chain condition.

(44) a. Willem$_i$ schaamt zich$_i$.
shames SE
b. *Willem$_i$ schaamt hem$_i$.
shames him

In (44), there is a +R argument *Willem*, and there should not exist any more +R elements in the other argument position. The SE anaphor in (44a), *zich*, is –R, resulting in the sentence being grammatical. On the other hand, being +R, the pronoun *hem* in (44b) is incorrect.

A new approach towards binding is taken by R&R. Based on two different kinds of anaphors, SE anaphors and SELF anaphors, they create new conditions. The conditions stated in (33) require that a reflexive-marked predicate be reflexive (Condition A) and that a reflexive predicate be reflexive-marked (Condition B). A predicate can be either

inherently reflexive, when a reflexive meaning is attached to it in the lexicon, or, if two of the arguments in the syntax are coindexed. A predicate can also be reflexive-marked in two ways: either inherently in the lexicon or by having a SELF anaphor as its argument. Since these binding conditions make no reference to structural relationships, R&R appeal to the Chain Condition (43).

We will see analyses in different languages with the background of R&R's binding conditions in the next section.

3.2. Intrinsically reflexive verbs in several languages

The distribution of SE and SELF anaphors seems slightly different from language to language, as is the distinction between verbs that are inherently reflexive or not. In this section, we will discuss intrinsically reflexive verbs in Icelandic and Danish and see the difference between these languages.

3.2.1. Icelandic

The Icelandic SE anaphor *sig* usually takes a long distance antecedent.

(45) a. María elskaði sjálfan sig/*sig.
likes SELF SE
'María likes self'.

b. Jón$_i$ sagði að María$_j$ elskaði sig$_{i/*j}$.
told that likes SE
'Jón$_i$ told that María$_j$ likes self$_{i/*j}$'.

Sig can take a local antecedent, as can be seen in (46). *Sig* can be locally bound only with the verbs that are reflexive-marked, as R&R argue.

(46) Jón$_i$ Rakaði sig$_i$.
shaved SE

Sigurjónsdóttir (1992) classified verbs into two types, depending on whether they are reflexive-marked or not. *Sig* cannot bind a local antecedent when governed by verbs such as *hata* 'hate' or *gefe* 'give', since these verbs are not lexically reflexive. However, *sig* can be local bound with a verb such as *bvo* 'wash', which is lexically reflexive. Examples of the two different types of verbs are given in (47) and (48).

(47) *Hate/gefa* type verbs- not lexically reflexive, hence a SELF-anaphor is needed.

elska 'love' *kyssa* 'kiss' *skjóta* 'shoot' *strið* 'tease'

(48) *Bvo* type verbs- lexical entries, one in which they are intrinsically marked as reflexive. Reflexive on their theta-grid, they therefore can take a SE-anaphor as an argument.

klæða 'dress' *meiða* 'hurt' *snýta* 'blow ones or oneself's nose'
fela 'hide' *púðra* 'put face powder on'

Sigurjónsdóttir concludes that *bvo* type verbs share the same semantic features. That is, all of the verbs have something to do with body parts.

In sentences with complement clauses, *sig* with *bvo* type verbs may also take a long-distance antecedent if the clause containing *sig* is subjective (49a) or infinitive (49b). However, when the clause is in the indicative mood, *sig* must be locally bound (Hyams & Sigurjónsdóttir 1990), as in (49c).

(49) a. Jón$_i$ segir að Pétur$_j$ raki sig$_{i/j}$.
says that shaves SE
b. Jón$_i$ skipaði Pétur$_j$ að raki sig$_{i/j}$.
ordered to shave SE
c. Jón$_i$ veit að Pétur$_j$ raki sig*$_{i/j}$
knows that shaves SE (Hyams & Sigurjónsdóttir 1990)

3.2.2. Danish

The Danish SE anaphor *sig* can be either locally bound or LD bound, when it is in a nonfinite clause.

(50) Julie$_i$ bad Ida$_j$ om [PROi at præsebtere sig$_{i/j}$].
Julie asked Ida about introduce SELF
'Julie$_i$ asked Ida$_j$ to introduce self $_{i/j}$'. (Jakubowicz 1994)

Sig cannot always be locally bound. There are certain cases where only local binding is allowed, as is the case in other languages. One of these cases is the verb condition.

Jakubowickz classified the verbs that allow *sig* to be locally bound as affectedness verb ([+a]) and verbs that prevent local binding as nonaffectedness verbs ([-a]).

(51) a. Ida$_i$ kritiserer *sig$_i$ / sig selv$_i$.
Ida criticizes self / self-self

b. Line$_i$ klædder sig$_i$ / sig selv$_i$ på.
Line dresses self/ self-self part (Jakubowicz 1994)

As can be seen in (51a), the verb *kritiserer* 'criticize' allows only the complex anaphor *sig selv*, which is always locally bound. In (51b), in contrast, both *sig* and *sig selv* are grammatical with the verb *klædder* 'dress'. Examples of the transitive [+a] and [-a] verbs are listed below.

(52) Affectedness verb [+a] - allow *sig* to be locally bound

vaske 'wash'	*børste* 'brush'	*rede* 'comb'	*sminke* 'make up'
bardere 'shave'	*frottere* 'rub'	*daekke* 'cover'	*beskyette* 'protect'
forsvare 'defend'	*redde* 'shave'	*befri* 'liberate'	*løsrive* 'unite'

(53) Nonaffectedness verb [-a] – prevent local binding

børe 'hear'	*betragte* 'look at'	*beundre* 'admire'	*respektere* 'respect'
elske 'love'	*bade* 'hate'	*kende* 'know'	*invitere* 'invite'
forsta 'understand'	*buske* 'recall'	*love* 'promise'	

These [+a]/ [-a] distinctions can be expressed in other words. [+a] verbs are inherently reflexive and [-a] verbs are not, using R&R's terms.

As has been demonstrated in Icelandic and Danish, SE anaphors behave slightly differently in complex sentences. However, in simple sentences, they behave the same way. *Sig* in Icelandic and Danish appear only with the verbs that are intrinsically reflexive. The next section will detail the properties of inherently reflexive verbs.

3.3. Intrinsically reflexives

As we have seen above, the existence of a SE anaphor in a simplex sentence is due to the lexically reflexive predicate. These lexically reflexive predicates seem to appear with SE anaphors and not SELF anaphors cross-linguistically. The following examples are taken from Everaert (1986).

(54) Norwegian

a. Jon skammer seg.
   shames SE

b. *Jon skammer seg selv.
   shames SELF
   'Jon is shamed of himself'.

(55) German

a. Johann irrt sich.
mistakes SE

b. *Johann irrt sich selbst.
mistakes SELF
'Johann mistakes himself'.

(56) Icelandic

a. Pétur skammast sín.
shamed SE

b. *Pétur skammast sjálfs sín.
shamed SELF
'Petur was shames of himself'.

(57) Italian

a. Gianni si sbaglia.
SE mistakes

b. Gianno sbaglia se stesso.
mistakes SELF
'Gianno mistakes himself'.

Everaert proposes that the answer to the question about the obligatory presence of SE anaphors with inherently reflexive verbs is because those verbs are ergative. First, ergative verbs resist er-affixation (58) and the same is true for inherently reflexive verbs (59). Ergative verbs also have lost their capacity to assign an object case as well as a thematic role (58a). This fact also seems to apply to the verbs that take *zich* and support its ergative status. The followings are Dutch examples given by Everaert.

(58) a. Hij is gevallen.
He has fallen.
*b. de valler
the faller

(59) a. Zij vergist zich.
She mistakes SELF
'She is mistaken'.
*b. de (zich) vergisser
[the (oneself) mistaker]

Everaert argues that inherently reflexive verbs are ergative, and empty positions in an ergative predicate must be locally bound. This becomes the trigger for the insertion of the SE anaphors. According to his analysis, the object of inherently reflexive verbs is moved to the subject position and only one thematic role is available for the chain (NP, trace). This movement triggers insertion of a SE anaphor.

On the other hand, R&R (1991) have a different idea about the question of why only SE anaphors appear with intrinsically reflexive verbs. They argue that it follows the economy principle, saying that the same property should not be marked twice. SELF anaphors reflexive-mark the predicates, and if the predicate were intrinsically reflexive, two reflexive marking properties would exist. This combination of the same kind of process twice in a lexical entry is prohibited. Hence SE anaphors, which do not have the ability to reflexive-mark the predicates, are required with intrinsically reflexive predicates.

There are, however, some cases where SELF anaphors appear with the inherently reflexive verbs as well as SELF anaphors as in (60). Why are SELF anaphors allowed in those cases, though they appear with intrinsically reflexive predicates?

(60) Dutch:

a. Jan wast zich/zichzelf.
   John washes SE/ SELF
b. Jan verdedigt zich/zichzelf.
   John defends SE/SELF
c. Jan snijdt zich/zichzelf.
   John cuts SE/SELF

R&R (1993) argue that verbs like *wassen* 'wash', *scheren* 'shave', and *aankledden* 'dress' have a dual entry: one is inherently reflexive and the other is transitive. However, this does not seem to apply to the verbs like *verdedigen* 'defend' and *snijden* 'cut'. Reuland (2000) proposes new types of interacting principles as given in (61).

(61) a. A syntactic chain is interpreted as one argument.
   b. The interpretation of a predicate must respect –arity.

This principle derives from the explanation of anaphoric binding.

(62) Dutch:

a. Max$_i$ schaamt zich$_i$.
shames SE

*b. Max$_i$ haat zich$_i$.
hate SE

In (62a), the syntactic chain (Max, zich) is interpreted as the one and only semantic argument of the predicate *schamen*. The verb *schamen* is inherently reflexive, resulting in a unary predicate. In (62b), the chain (Max, zich) is interpreted as one semantic argument of *haat*, in the same way as (62a). However, *haten* is semantically a binary predicate and needs two arguments. Therefore the sentence (62b) is not acceptable.

Based on the principles in (61), Reuland argues that –arity of a predicate is encoded on a lexical item separately from its thematic properties. A representation of lexical information could be considered in two tiers. One is representing conceptual information and the other is representing formal information such as its –arity. For instance, verbs such as *haten* 'hate' have the conceptual information that they have two thematic roles in one tier and also the formal information that they have a binary predicate in another tier. On the other hand, verbs such as *wassen* 'wash', *verdedigen* 'defend' and *snijden* 'cut' have the conceptual information that they have two thematic roles in one tier, but in another tier, there is no encoding of –arity. If –arity is not encoded, the system is free to assign those thematic roles either to one or to two chains/arguments. When only one chain/argument is assigned, a SE anaphor can be used, and when two chain/arguments are assigned, a SELF anaphor must be added.

3.4. Verbal reflexive

Lidz (1996) has a slightly different approach towards binding. It is based on R&R's analysis, stating binding conditions in terms of predicates. Lidz notes the notion of a verbal reflexive, by examining the data in the Dravidian language Kannada. Like the Dutch SE anaphor *zich*, the monomorphemic reflexive pronoun *tannu* does not reflexive-mark its predicate. It is therefore not locally bound (63), but it can be long distance bound (64).

(63) *Avanu$_i$ tann-annu$_i$ hoDe-d-a.
he SE-Acc hit-Past-3SM

(64) Rammu$_i$ shyaamu$_k$ tann annu$_{i/*k}$ priiris-utt-anne anta namb-utt-anne.
SE-Acc love-Pres-3SM that believe-Pres-3SM
'Rammu$_i$ believes that Shyamu$_k$ loves self $_{i/*k}$'.

There are cases, however, where local binding happens. What licenses local binding?

(65) a. Shyaamu$_i$ raamu$_j$ tann-annu$_{*i/j}$ hoDe-du-koND-a anta heel-id-a.
SE-Acc hit-PP-REFL-Past-3SM that say-PAST-3SM
'Shyaamu$_i$ said that Raamu$_j$ hit self $_{*i/j}$'.

b. Shyaamu$_i$ Raamu$_j$ tann-annu$_{i/*j}$ hoDe-d-a anta heel-id-a.
SE-Acc hit-Past-3SM that say-Past 3SM
'Shyaamu$_i$ said that Raamu$_j$ hit self$_{i/*j}$'.

(66) a. Raamu$_i$ tann-annu$_i$ hogal-I-koND-a.
SE-Acc praise-PP-REFL-Past-3SM
'Raamu$_i$ praised self$_i$'.

b. *Raamu$_i$ tann-annu$_i$ hogaL-id-a.
SE-Acc praise-Past-3SM
'Raamu$_i$ praised self$_i$'. (Lidz 1995 with modification)

In the case of local binding, an additional element *koL* (*koND* in past tense) appears. It is added to the verb, not the nominal. Lidz calls it a verbal reflexive. The verbal reflexive is added to the past particle form of the verb and inflects for tense and agreement. It expresses the identity between the subject and direct object, indirect object or beneficiary.

3.4.1. Lidz's binding analysis

Lidz indicates the problem with R&R's analysis, namely, not all SE anaphors resist binding by a coargument. In Dutch, the lexical reflexivity of a verb can be determined independently of its behavior with respect to the binding of *zich*. When such verbs are nominalized, they can be interpreted as reflexive, whereas the nominalizations of other verbs cannot be interpreted in this way.

(67) a. *Max haat zich.
hates SE

b. Haten is niet gezond.
hating not healthy
'Hating (only someone else) is unhealthy'.

(68) a. Max wast zich.
washes SE
b. Wassen is gezond.
washing healthy
'Washing (oneself) is healthy'. (Lidz 1996, originally Everaert 1986)

Lidz argues that R&R's binding theory does not accurately distinguish the set of elements that can be bound by a coargument from the set of elements that cannot.

Based on this problem, Lidz explores a new analysis, stating that the existence of anti-coargument is due to an interaction of anaphora and the theory of verbal reflexives. He proposes that coreference of arguments can be represented in the argument structure. In Kannada where the verbal reflexive *koL* is present, coreference at this level gives rise to *koL* in a sentence like (66a).

(69)(=(66a))
a. Raamu$_i$ tann-annu$_i$ hogal-I-koND-a.
SE-Acc praise-PP-REFL-Past-3SM
'Raamu$_i$ praised self$_i$'.

b. (x (y)) thematic tier
\|
(1 (2)) aspectual tier (Lidz 1996)

According to Lidz, as a consequence of linking the two thematic arguments to the same aspectual element, the most prominent aspectual element remains unlinked, licensing the verbal reflexive. *Tannu* in sentence (69), thus, is locally bound. Lidz assumes that the ungrammaticality of sentence (66b), though, is not simply due to the absence of the

verbal reflexive but due to a mismatch between the tiers of arguments. Coreference of coarguments must be expressed in the argument structure. Based on this idea, Lidz proposes explicit conditions at the interface between the semantic component and the argument structure component, called the Condition R.

(70) Condition R:

sem. str. arg. str.

As has been the case in Kannada, Condition R requires semantic reflexivity to be lexically represented. When reflexivity is established lexically, the correspondence between the semantics and the syntax involves finding the lexical entries for each element.

Condition R is ultimately responsible for the coargument restriction[8]. It is an interface condition forcing semantic reflexivity to be lexically expressed, i.e., colinking the coreferential elements in the argument-structure representation.

3.4.2. *Zich* as a verbal reflexive?

Lidz argues that the Dutch SE anaphor *zich* could be a verbal reflexive as well. There are some cases that *zich* does not behave like an argument. As we discussed earlier, verbs that take *zich* behave like ergative verbs. Lidz argues that if verbs that take *zich* are

[8] In Lidz's analysis, the coargument restriction is due to the absence of lexical reflexivity in the presence of semantic reflexivity.

ergative verbs, the NP that occurs in the subject position, for example *zij*, not *zich* in (71), is the D-structure object. If *zich* is not an object, it is not an argument.

(71) Zij vergist zich.
She mistakes SELF
'She is mistaken'.

If *zich* is not an argument in these cases, it seems that it is not a reflexive pronoun licensed by an inherent reflexive. Lidz proposes, then, that inherent uses of *zich* in these cases are considered verbal reflexives. In his analysis, there are two types of reflexivity in Dutch: a bound anaphor and a verbal reflexive.

According to Lidz's analysis, in sentences like (72), *zich* arises not because it is a bound anaphor but because it is a verbal reflexive, representing unlinked elements on the aspectual tier, the same way as in (73).

(72) a. Max wast zich.
washes

b. (x (y))
\ |
(1 (2))

(73) a. Het geruhit verspreidde zich.
the rumor spread self
'The rumor spread'.

b. (y)
/\
((1 (2) (3))

The availability of *zich* in (71) seems to be explained in the same manner as (73). There is a semantically reflexive predicate. Condition R demonstrated in (70) forces the reflexivity to be expressed lexically. Since the predicate is lexically reflexive, this meets the Condition R.

Lidz claims that the choice between the anaphor and verbal reflexive variants is due to interaction between semantics and argument structure. This appeal is however not clear. According to Lidz, the ungrammaticality of (74) could be explained for both anaphor and verbal reflexive aspects.

(74) (=(67b))
*Max$_i$ haat zich$_i$.
hate SE
'Max$_i$ hates self$_i$'.

Lidz argues that if *zich* is a verbal reflexive, the lexical properties of *haten* are violated, and if *zich* is an anaphor, the argument structure violates the Condition R.

I assume this ambiguity occurs because *zich* is not a verbal reflexive and because it functions only as an anaphor in argument positions. Despites Lidz's argument that R&R do not distinguish the set of elements that can be bound by a coargument from the set of elements that cannot, their distinction was clear, especially in satisfying the Condition B. In fact, R&R (1993) show the verb distinction by nominalizing verbs as shown in (67-68). If there is a problem in considering *zich* as an anaphor, it might be in the case of *zich*

in a non-argument position, for example in a sentence like (73). *Zich* in this sentence appears as a grammatical marker, which is a part of the verb in the lexicon (Lødrup 1999)[9].

A verbal reflexive would be the reflexive marker that attaches to the verbs, as is the case in Kannada. Therefore I believe Condition R, which was derived from the data of verbal reflexives, only applies for reflexivization with verbal reflexives.

To sum up Lidz's analysis, there is a verbal reflexive in a language like Kannada. This reflexive is not like anything in the traditional sense. He proposes the principle called Condition R, which forces semantic reflexivity to be lexically expressed by colinking the coreferential elements in the argument structure representation.

Lidz suggests that the Dutch SE anaphor *zich* could be a verbal reflexive as well as a bound anaphor. However, his distinction between a verbal reflexive and an anaphor is vague and is not explained clearly. I assume *zich* is not considered as only an anaphor, which can take local antecedent with intrinsically reflexive verbs, and this follows with R&R's analysis.

---

[9] Lødrup demonstrates this argument with Norwegian examples. The SE anaphor *seg* in (1) is an argument of the predicate, while *seg* in (2) is not an argument.

(1) Hun tørker seg.
She dries herself.

(2) Døren åpnet seg.
the-door opened itself
'The door opened'.

According to Lødrup, *seg* in (2) is a grammatical marker.

3.5. Conclusion

This chapter I comprised a discussion of the reflexivity analysis. R&R proposed that reflexivization of a predicate is what imposes the locality condition on anaphors, not an anaphor itself. The coargument of reflexivization is therefore due to the absence of lexical reflexivity of a predicate. Their conditions are repeated here.

(75) Binding Conditions

Condition A:

A reflexive-marked syntactic predicate is reflexive.

Condition B:

A reflexive semantic predicate is reflexive-marked.

If two arguments of a predicate are coindexed, then the predicate licenses reflexivity. In order to be reflexive-marked, the predicate either has to be lexically reflexive, or it needs to have a SELF anaphor. R&R attribute the configurational effect of anaphors to the Chain Condition.

(76)(=(43)) Chain Condition

A maximal A-chain (α_1, ..., α_n) contains:

a. exactly one link $-\alpha_i$, which is both +R and marked for structural Case:

b. exactly one theta-marked link.

Unlike R&R who define the notion 'reflexive' in terms of coindexing, Lidz explores new reflexives, called verbal reflexives. Verbal reflexives, as shown in the Kannada examples, are added to the verbs and they inflect for tense and agreement. Based on the data from Kannada, Lidz proposes Condition R, repeated here.

(77) (=(70))
Condition R:

sem. str. arg. str.

Condition R forces semantic reflexivity to be lexically expressed by colinking the coreferential elements in the argument structure representation.

The two studies show that no matter what type of reflexivity, it needs to be licensed. In the case of reflexivity of a predicate, it has to be licensed by intrinsic reflexivity, and in the case of verbal reflexivity, the additional element has to be licensed.

Chapter 4 A *Zibun*-binding analysis

4.0. Introduction

New light has been shed on the binding analysis by R&R as shown in the last chapter. Unlike Chomsky, R&R examined the data in different languages, some of which have simplex anaphors such as *zich* in Dutch. The Japanese reflexive *zibun* may be expected to be a SE anaphor in the sense that it is a morphologically simplex anaphor. In addition it shares the property, along with other SE anaphors, that it lacks phi-features. If *zibun* is a SE anaphor, *zibun*-binding will be successfully explained by R&R's binding analysis.

The aim of this chapter is to discuss *zibun*-binding from the perspective of coindexing. *Zibun* behaves similarly to SE anaphors and it is concluded that it is a SE anaphor. Based on the hypothesis that *zibun* is a SE anaphor, *zibun*-binding will be discussed in section 4.2. Adopting the framework of R&R, we will focus on reflexivity of the predicates and the Chain Condition. Section 4.3 demonstrates problems that cannot be explained within the framework of R&R's binding analysis. There seems to be a limit to R&R's binding analysis, when explaining all of the binding facts in languages just from a syntactic perspective. Finally different types of reflexivity other than predicate reflexivity will be demonstrated in section 4.4.

4.1. *Zibun* as a SE anaphor

R&R (1991) characterize the structure of SE anaphors and SELF anaphors as shown in (78). SE anaphors are in the head position of their projection.

(78) SE anaphor:

[NP/DP SE...]

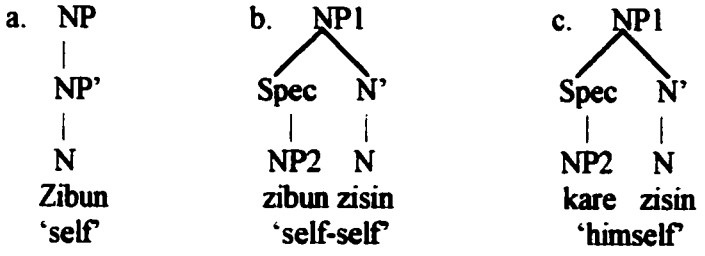
SELF anaphor:

a. himself

b. [NP him [N' SELF]

Katada (1991) analyses the internal structures of three Japanese reflexives, *zibun* 'self', *zibun-zisin* 'self self' and *kare-zisin* 'himself', as shown in (79). As can be seen, the structures of a SE anaphor and *zibun* in (79a), and a SELF anaphor and complex anaphors, *zibun-zisin* (79b) and *kare-zisin* (79c) are identical to *zibun* in the head position of NP, which is likely to allow X° movement, as SE anaphors do.

(79)



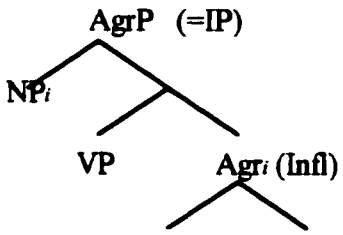
(Katada 1991)

The defining property of SE anaphors discussed by R&R is that they lack phi-features, being responsible for subject orientation and Infl-locality constraints. Since the Japanese reflexive *zibun* lacks phi-features, it will have the same features as SE anaphors.

4.1.1 Subject orientation and Infl-locality

In earlier discussion, it was demonstrated that SE anaphors require X° movement to get phi-features. At LF, SE-heads adjoin to Agr, which both the infinitival and finite Infl are associated with (Borer 1989, R&R 1993). Agr is the only element needed to satisfy the condition that c-commands anaphors and is in the head-position with phi-features. Aikawa's (1993) analysis, which we discussed in chapter 2, follows this point and she proposes the structure as in (80).

(80)



(Aikawa 1993)

Being a head, *zibun* is bound to the first accessible Agr-head, where it can get phi-features. Thus the Infl-locality constraint is an essential condition in order to get phi-features. Since Agr is always coindexed with the subject and *zibun* associates with Agr, *zibun* has to be subject oriented, as is the case in (81).

(81) (=(5))

Taroi-ga Zirojni-ni [Hanakokk-ga zibun-i/*j/k -o hihansita] to it-ta.
T-Nom Z-Dat H-Nom self-Acc criticized Comp said
'Taroi told Zirojni that Hanakokk criticized self i/*j/k'.

The dative NP *Ziro* does not associate with Agr and therefore cannot be an antecedent. Only the subjects, either *Taro* or *Hanako*, could be an antecedent of *zibun*.

When talking about the *zibun*-binding phenomena in Chapter 1, it was noted that non-subject NP can be an antecedent in causative sentences, as repeated here in (82). How could the subject orientation be explained in causative sentences where a non-subject antecedent occurs in the surface structure?

(82) Taro$_i$-ga Hanako$_j$-ni zibun$_{i/j}$-no heya-de benkyou sase- ta.
T-Nom H-Dat self-Gen room-in study CAUSE-Past
'Taro$_i$ made Hanako$_j$ study in self's $_{i/j}$ room'.

As was discussed, the underlying structure of causative sentences like (82) have two cycles. If reflexivization of *zibun* applies to the lower cycle in (82), the interpretation would be *Hanako studied in her room*. Thus, *Hanako* is assumed as a subject in the sentence. Then, the LF representation of sentence (82) is as in (83), which shows the grammaticality of *Hanako* being one of the possibilities for an antecedent.

(83) [Taro$_i$ Agr2 [Hanako$_j$ Agr1 zibun $_{i/j}$ V] V]

Zibun is bound to the first accessible Agr1, receiving the index *Hanako*. Dative NP *Hanako*, thus, can be construed as a possible antecedent.

Comparing the properties of *zibun* to those of SE anaphors, it was found that they behave exactly the same. The internal structures are the same. SE anaphors lack phi-features, which is responsible for Infl-locality constraint and subject orientation. The

same is true in the Japanese reflexive *zibun*. With regard to these behaviors, it can be concluded that *zibun* is a SE anaphor.

4.2. *Zibun*-binding

Zibun-binding will be examined, based on the hypothesis that *zibun* is a SE anaphor. Following Everaert's (1991) analysis that SE should be viewed as pronominal anaphors, it is said that *zibun* is also a pronominal anaphor. Ueda (1986) defends a similar analysis. The problem with his analysis is the local binding of *zibun*. With Chomsky's syntactic binding condition, Ueda does not succeed in explaining *zibun* in a local domain.

The local binding of *zibun* can be explained with R&R's binding condition. The grammaticality of local binding depends on the predicates, namely if the predicate is lexically reflexive or not. *Zibun* in (84a) cannot be coreferential with the subject of the sentence, *Taro*, while *zibun* in (84b) can.

(84) a. *Taro$_i$-ga zibun$_i$-o ket-ta.
T-Nom self-Acc kick-Past
'Taro$_i$ kicked self$_i$'

b. Taro$_i$-ga zibun$_i$-o hihansi-ta.
T-Nom self-Acc criticize-Past
'Taro$_i$ criticized self$_i$'

If it is assumed that the predicate *hihansuru* 'criticize' is reflexive-marked, then it is possible for *zibun* to be bound locally. On the other hand, *keru* 'kick' is not reflexive-marked and local binding of *zibun* is not allowed.

Let us compare the simplex anaphor *zibun* and the complex anaphor *zibun-zisin* 'self-self'. *Zibun-zisin* is a SELF anaphor and functions as a reflexivizer (Aikawa 1993).

(85) Taro$_i$ -ga *zibun$_i$/ zibun-zisin$_i$ -o tatai-ta.
T-Nom SE SELF -Acc hit-Past
'Taro hit himself'.

The predicate *tataku* 'hit' is reflexive marked by *zibun-zisin* and its arguments are coindexed in (85), resulting in the grammaticality of the sentence. On the other hand, the SE anaphor *zibun* may not reflexive mark a predicate, which violates the condition of R&R's binding theory. Therefore the SE anaphor *zibun* is ungrammatical in this sentence.

When the verb *tataku* 'hit' is in the embedded clause, it allows *zibun* to be only LD bound, hence the subject of subordinate clause *Ziro* in (86) cannot be the antecedent of *zibun*.

(86) Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/*j}$ –o tatai-ta] to it-ta.
T-Nom Z-Nom SE –Acc hit-Past Comp say-Past
'Taro$_i$ said that Ziro$_j$ hit self $_{i/*j}$'

On the other hand, the sentences below work differently.

(87) Taro$_i$-ga zibun$_i$/ zibun-zisin$_i$ –o hihansi-ta.
T-Nom SE SELF criticize-Past
'Taro$_i$ criticized himself$_i$'

(88) Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/j}$ -o hihansi-ta] to it-ta.
T-Nom Z-Nom SE -Acc criticize-Past Comp say-Past
'Taro$_i$ said that Ziro$_j$ criticized self $_{i/j}$'

The verb *hihansuru* 'criticize' is intrinsically reflexive-marked, therefore not only *zibun-zisin* but also *zibun* in (87) is grammatical. When *zibun* is in the embedded clause, as seen in (88), the subject of either the embedded clause or the main clause can be the antecedent.

These facts can let us divide verbs into two different types. One type comprises verbs that are intrinsically reflexive-marked, and allow local binding of *zibun*. The other considers the verbs that are not reflexive-marked, and local binding is forbidden. Examples of the two types of verbs are shown in (89) and (90).

(89) The verbs are lexically reflexive, hence both SE and SELF anaphors can be taken as an argument.

hihansuru 'criticize' *semeru* 'blame' *suki* 'like' *kaerimiru* 'reflect' *nikumu* 'hate'
bengosuru 'defend' *sonkeisuru* 'respect' *homeru* 'praise' *nagusameru* 'comfort'

(90) The verbs are not lexically reflexive, hence SELF anaphor is needed.

tataku/ naguru 'hit' *keru* 'kick' *nayamaseru* 'be worried' *korosu* 'kill'

Those verbs in (89) allow either SE anaphor *zibun* or SELF anaphor *zibun-zisin/kare-zisin*. It is because they have a dual entry, one is inherently reflexive and the other is transitive. When a verb is intrinsically reflexive, it takes *zibun*, and when a verb is not

lexically reflexive, it takes a SELF anaphor in the local domain[10] and it may also take *zibun* outside of the domain

4.2.1. Intrinsic reflexives and sloppy identity

Evidence that verbs in (89) are lexically reflexive is found in VP deletion context. Fox (1993) proposes that a reflexive in a VP deletion context is assigned a sloppy identity reading, only when a predicate is reflexive-marked.

(91) John likes himself, and Bill does too.
  a. Sloppy reading: John likes John, and Bill likes Bill, too.
  b. *Strict reading: John likes John, and Bill likes John, too.

Sentence (91) can be interpreted as only a sloppy identity, because the predicate *like* is reflexive-marked by the SELF anaphor *himself*.

If the verbs are intrinsically reflexives, they allow *zibun*, in deep anaphor[11] context, to receive only a sloppy identity. When the verb is *not* a reflexive-marked, either sloppy or strict interpretation is possible[12].

---

[10] When the antecedent and *zibun* are coarguments and form an A-chain, we call it the local domain.

[11] Hankamer and Sag (1976) propose deep anaphora such as 'do it' in English, which is pragmatically licensed and does not need a linguistic antecedent. The difference between surface and deep anaphora appears in LF. Examples below are given by Hankamer and Sag (1976). The sentences in (1) show the surface form and the sentences in (2) are LF form for (1B) sentences. LF representation for (Bii) obtains by copying fully missing VP. On the other hand, LF representation for (Bii) can obtain without the copying operation. LF representation of a deep anaphor is identical to its surface form.

(1) A I'm going to [stuff the ball through this hoop].
  B (i) It's not clear that you'll be able to [ ].
    (ii) It's not clear that you'll be able to [do it].
(2) The LF form of
  B(i) It's not clear that you'll be able to [stuff the ball through this hoop].
    (ii) It's not clear that you'll be able to [do it].

(92) Taro-ga zibun-no inu-o naguru to, Ziro mo so sita.
T-Nom self-Gen dog-Acc hit when Z too so did
'When Taro hit his dog, Ziro did, too'.
a. Sloppy reading: Taro hit Taro's dog. Ziro hit Ziro's dog, too.
b. Strict reading: Taro hit Taro's dog. Ziro hit Taro's dog, too.

When *zibun* in (92) receives a bound variable reading, the predicate of 'x hit x's dog' is copied, and it gets a sloppy identity. By contrast, when *zibun* is coreferential with *Taro*, the predicate of 'x hit Taro's dog' is copied and it gets a strict identity.

When the predicate is reflexive-marked, only a sloppy reading is possible.

(93) Taro-ga zibun-zisin-o naguru to, Ziro mo so sita.
T-Nom self-self-Acc hit when Z too so did
'When Taro hit himself, Ziro did, too'.
a. Sloppy reading: Taro hit Taro. Ziro hit Ziro, too.
b.*Strict reading: Taro hit Taro. Ziro hit Taro, too.

In (93), the predicate is reflexive-marked by the SELF anaphor *zibun-zisin*, and only a sloppy reading is available. If *zibun* is in the sentence instead of *zibun-zisin*, a sloppy identity is not acceptable. In that case, the reading is 'Taro hit the speaker$_i$, and Ziro hit the speaker$_i$, too'. Then, when it is possible for *zibun* to receive a sloppy identity, a predicate has to be lexically reflexive, since nothing else is able to be a reflexive marker.

In the sentence (92), *so sita* 'did so' appears in the LF form, as is identical to surface form. *So sita* is considered as a deep anaphor. Hoji (2000) argues that there is no VP deletion in Japanese, just deep anaphors. For more discussion, see his article.

[12] *Zibun* has a bound variable as we see the discussion by Ueda in 2.2.1. Reflexives in other languages have the same [+bound] feature. (Reinhart 1983 and Everaert 1991).

(94) Taro-ga zibun-o hihansuru to, Ziro mo so sita.
T-Nom self-Acc criticize when Z too so did
'When Taro criticize himself, Ziro did, too'.
a. Sloppy reading: Taro criticized Taro. Ziro criticized Ziro, too.
b. *Strict reading: Taro criticized Taro. Ziro criticized Taro, too.

In (94), a sloppy reading is possible, because the predicate *criticize* is intrinsically a reflexive-marked. When *zibun* occurs with intrinsically reflexive verbs, such as in sentence (94), the bound variable reading is not available and only sloppy reading is possible.

This happens not only in Japanese. The Icelandic SE anaphor *sig* works the same way as *zibun*. *Sig* is a bound variable, as seen in (95), and either the sloppy or strict identity interpretation is possible.

(95) Jón$_i$ sagi [að þú hefðir svikið sig$_i$] og Péturi gerði það líka
John said that you had betrayed self and Peter did so too
(Thráinsson 1991)
a. Sloppy reading: Peter said that you had betrayed Peter.
b. Strict reading: Peter said that you had betrayed John.

When *sig* occurs with an intrinsic reflexive verb, the strict reading is not possible.

(96) Jón$_i$ rakaði sig$_i$ og Pétur gerði það líka.
John shaved himself and Peter did so too. (Thráinsson 1991)
a. Sloppy reading: John shaved John. Peter shaved Peter, too.
b. *Strict reading: John shaved John. Peter shaved John, too.

The verb *raka* is an intrinsic reflexive that assigns a sloppy interpretation.

The differences between intrinsically reflexive verbs and non reflexive-marked verbs are thus distinguishable. When a verb is lexically reflexive, the sloppy reading is forced.

4.2.2. Chain Condition

Those verbs, which do not allow *zibun* in the A position to have a local antecedent, do so allow with *zibun* in the A' position. The verb *tataku*, which is not reflexive-marked, does not allow *zibun* to have a local antecedent, as mentioned above. Therefore the antecedent of *zibun* in (97a) can only be *Taro*, the subject of the main clause. On the other hand, *zibun* in both (97b) and (97c) may be locally bound, and the subject of the embedded clause *Ziro*, as well as the subject of the main clause *Taro*, can be an antecedent of *zibun*.

(97) a. Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/*j}$ –o tatai-ta] to itta.
T-Nom Z-Nom SE –Acc hit Comp said
'Taro$_i$ said that Ziro$_j$ hit self$_{i/*j}$'

b. Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/j}$ –no inu –o tataita] to itta.
T-Nom Z-Nom self-Gen dog –Acc hit Comp said
'Taro$_i$ said that Ziro$_j$ hit his$_{i/j}$ dog'.

c. Taro$_i$-ga [Ziro$_j$-ga inu-o zibun$_{i/j}$ –no heya-de tataita] to itta.
T-Nom Z-Nom dog-Acc self -Gen room-in hit] Comp said
'Taro$_i$ said that Ziro$_j$ hit the dog in his$_{i/j}$ room'.

Predicates and their arguments play an important role in R&R's analysis. When the predicates are examined in (97a-c), the result is that predicates of the embedded clauses are the same *tataku*. *Zibun* in (97a) is only one of the direct arguments of the predicate *tataku*. The verb *tataku* is not lexically reflexive and cannot take *zibun* as an argument. *Zibun* in (97c) occurs in an adjunct position and it does not interact with a predicate, resulting in free interpretation of either local or long distance binding, as long as its antecedents are subjects. A question arises through examination of example (97b). Why can *zibun* in (97b) have a local antecedent, though the verb is not reflexive-marked? Possessive pronouns seem to be problematic to standard binding theory.

(98) a. [John and Mary]$_i$ like their$_i$ pictures.
b. [John and Mary]$_i$ like each other's$_i$ pictures.

As is the case for *zibun* in (97b), the pronoun *their* is not supposed to be locally bound. The pronoun and the anaphor in (98) are not arguments of the syntactic predicate *like*. R&R's Condition A is relevant only for anaphors as a syntactic predicate. As they are not arguments, both pronoun and anaphor in (98) can appear freely.

Here arises a problem with R&R's Chain Condition. As pointed out by Fox (1993), the A-chain in (98a) contains two [+R] elements, <John and Mary, their>, violating the Chain Condition. Fox proposed the reduction of R&R's Condition A to the Chain Condition. He assumes that A-chain can be formed only by arguments of a syntactic predicate. His new Chain Condition is presented in (99).

(99) A-chains are restricted to argument position of syntactic predicates.

Returning to sentence (97b), *zibun* in is not an argument of the syntactic predicate *tataku*, satisfying the Chain Condition.

Grammaticality of the other type of sentences like (100) can also be explained with the Chain Condition.

(100) Taro$_i$-ga [zibun$_i$-ga tensai da to] omotteiru.
T-Nom selfi-Nom genius be Comp thinks
'Taro$_i$ thinks that self$_i$ is a genius'.

Being in separate clauses, *Taro* and *zibun* are not subjacent. Since they do not form A-chain, the Chain Condition is satisfied. In this sentence, Condition B is also satisfied, since those two NPs are not coarguments.

Moreover, the Chain Condition contributes to the distinction of the pronoun *kare* and the SE anaphor *zibun*.

(101) a. *Taro$_i$-wa kare$_i$-o nagusameta.
T-Top he-Acc comforted
'Taro$_i$ comforted him$_i$'.

b. Taro$_i$-wa zibun$_i$-o nagusameta.
T-Top self-Acc comforted
'Taro$_i$ comforted self$_i$'.

(102) a. Taro$_i$-wa kare$_i$-no imouto-o nagusameta.
T-Top he-Gen sister-Acc comforted
'Taro$_i$ comforted his$_i$ sister'.

b. Taro$_i$-wa zibun$_i$-no imouto-o nagusameta.
T-Top self-Gen sister-Acc comforted
'Taro$_i$ comforted self's$_i$ sister'.

The predicate in (101-102) *nagusameru* is intrinsically reflexive. The difference between (101a and b) is an A-chain. *Zibun* is a [-R] element, while *kare* is a [+R] element. Because *kare* is an argument of a syntactic predicate, the A-chain is <Taro, kare>. Two [+R] elements are not allowed in the same chain; hence sentence (101a) is ungrammatical. On the other hand, *kare* in (102a) is locally bound. *Kare* (102a) is not an argument of the syntactic predicate, and therefore it is ruled out by the Chain Condition.

To sum up the *zibun*-binding analysis, reflexivity is a property of the predicate. The reflexivity of a predicate is licensed by the intrinsic reflexivity of a predicate. When we think of a SE anaphor, the grammaticality of locally bound SE anaphors depends on whether the predicates are intrinsically reflexive or not. The grammaticality of local binding of *zibun* also depends on the predicates. As has been shown above, there are two verb types, that decide the grammaticality of the local binding of *zibun*.

Zibun, being a SE anaphor, is usually long distance bound, unless it appears with intrinsically reflexive predicates. Thus, the ambiguity of the local or long distance interpretation in complex sentences is due to the dual entry of the verbs.

(103) Taro$_i$-ga [Ziro$_j$-ga zibun$_{i/j}$ -o hihansi-ta] to it-ta.
T-Nom Z-Nom SE -Acc criticize-Past Comp say-Past
'Taro$_i$ said that Ziro$_j$ criticized self $_{i/j}$'

When the subject of the embedded clause *Ziro* is interpreted as an antecedent of *zibun*, the verb *hihansuru* behaves as an intrinsic reflexive. On the other hand, when the main subject *Taro* is an antecedent, the verb has a transitive entry, which needs a SELF anaphor for local binding.

4.3. Beyond Syntax

There are some cases where syntactic constraints are limited in explaining *zibun*-binding. One of the cases is the logophoric use of *zibun*. The logophoric use of anaphors is one of the controversial topics in linguistics. With R&R's binding analysis, some logophoric uses of anaphors are explained syntactically to some extent.

(104) Picture of myself would be nice on the wall. (R&R 1993)

(105) a. [Zibun$_i$ /zibun-zisin$_i$-ga gan kamosirenai koto]- ga Taro$_i$-o nayamaseta.
SE SELF -Nom cancer may that-Nom T-Acc worried
'That self$_i$ may be cancer worried Taro$_i$.

b. [Zibun$_i$ / zibun-zisin$_i$-ga kaita e]-ga Taro$_i$-o manzokusaseta.
SE SELF-Nom drew picture-Nom H-Acc satisfied
'The Picture which self$_i$ drew satisfiedTaro$_i$'.

In these sentences, the antecedents do not c-command anaphors. R&R, with Thráinsson (1991), explains that center-oriented anaphors do not have to have an antecedent, or when an antecedent is available, it does not have to c-command the anaphor[13]. R&R (1993) argue that a SELF anaphor can be a logophoric iff it does not reflexive-mark its syntactic

[13] See the footnote 6 for further anti c-command analysis.

predicate. Neither *Myself* in (104), nor *zibun-zisin* in (105a) or (105b) is an argument of a syntactic predicate, and therefore cannot reflexive-mark the predicate. Thus the logophoric use of SELF anaphors is possible. In contrast, when a SELF anaphor is an argument of the predicate, the logophoric use is not acceptable.

(106) Hanako-ga zibun$_i$/*zibun-zisin$_i$-o korosoutosita toki, Taro$_i$-wa Ziro-to ita.
H-Nom SE SELF-Acc try-to kill when T-Top Z-with be
'When Hanako tried to kill self$_i$, Taro$_i$ was with Ziro'.

Being an internal argument, *zibun-zisin* reflexive-marks the syntactic predicate *korosoutosuru* and the logophoric use is prevented.

SE anaphors are not subject to a syntactic condition, and can be used as logophoric much more freely. Logophoric use of anaphors is related to expressions and centers that consist of the participants, the time and the place of the utterance (R&R 1991). SE anaphors are associated with Infl to get phi-features. If there is no relevant Infl available, it can look for a center. The logophoric use of *zibun*, thus, seems to be explained. However, there are some examples beyond R&R's analysis.

(107) *Hanako-ga zibun$_i$-o korosita toki, Taro$_i$-wa Ziro-to ita.
H-Nom self-Acc killed when T-Top Z-with be
'When Hanako killed self$_i$, Taro$_i$ was with Ziro'.

In contrast with (106), *zibun* in (107) is ungrammatical. The structure of the sentence is the same, and the only difference is the verb 'tried to kill' or 'killed'. This verb difference has nothing to do with R&R's analysis. With respect to the difference, Kuno (1987)

claims that it is possible to describe an action or state only with respect to a living person. *Taro* in (106) is still alive when he describes the sentence, while *Taro* in (107) is not alive and not able to describe it.

Whenever *zibun* occurs in an utterance, the perspective of the person who is coreferential with *zibun* matters and the consciousness of the person plays an important role (Kuno 1972). For instance the verbs *kureru* and *ageru* are both equivalent to the English 'give'. *Kureru* is used when things are given to you, while *ageru* is used when someone gives things to you. *Koreru* has a more passive feeling. When these two verbs occur with *zibun*, the grammaticality varies.

(108) Taro$_i$-wa Hanako-ga zibun$_i$-ni kasitekureta/ *kasiteageta hon -o nakusite simatta. T-Top H-Nom self-to lend-give lend-give book-Acc loose ended-up
'Taro$_i$ has lost a book which Hanako lent self$_i$'. (Kuno 1987 with modification)

In (108), *zibun* is bound by *Taro*. This sentence is interpreted with *Taro*'s perspective. *Taro*, being a beneficiary of the action *lend*, has passive consciousness. Therefore *kureru*, not *ageru*, is appropriate in the sentence. This example is, again, not the subject of syntax. Considering these cases, a discourse perspective seems to be needed for *zibun*-binding analysis.

Though most *zibun*-binding conditions can be handled within the framework of R&R's reflexivity, there are some cases beyond the framework. Discourse perspective may be needed to satisfy all of the binding facts, and these facts are different from language to language. Future investigation is needed in the syntax-discourse interface.

4.4. Other types of reflexivity

Tsujimura and Aikawa (Henceforce A&T, 1996) propose different types of intrinsically reflexive verbs, so-called *zi*-verbs. *Zi*-verbs are morphologically marked with the reflexive prefix *zi*. The verbs are *zimansuru* 'boast oneself', *zikyosuru* 'confess oneself' and so on. In A&T's analysis, these verbs are considered as intrinsically reflexive and therefore allow *zibun* to be locally bound.

(109) Taro$_i$-ga [Ziro$_j$-ga zibun$\bullet_{i/j}$-no hanko-o zikyosita to] itta.
T-Nom Z-Nom self-Gen crime-Acc confess Comp said
'Taro$_i$ said that Ziro$_j$ confessed self $\bullet_{i/j}$'s crime'.

(110) Taro$_i$-ga [Ziro$_j$-ga zibun$\bullet_{i/j}$-no musuko-o zimnsita to] itta.
T-Nom Z-Nom self-Gen son-Acc boasted Comp said
'Taro$_i$ said that Ziro$_i$ boasted (about) self$\bullet_{i/j}$'s son'.

It is doubtful whether those verbs such as *zikyosuru* 'confess' should be considered as intrinsically reflexive. *Zibun* in sentences (109-110) are not arguments of a syntactic predicate. Recall Everaert (1986, 1991) and R&R's (1991, 1993) analysis. If the predicate is intrinsically reflexive, the arguments of the predicate have to be coreferential, as shown in (111). With *zi*-verbs (109-110), arguments are not coreferential or they do not share the semantic roles, as illustrated in (112).

(111) verb; <argument1= argument2>

(112) (109) zikyousuru (confess); <Ziro≠zibun no hanko (self's crime)>
(110)zimansuru (boast); <Ziro≠zibun no musuko (self's son)>

It could be assumed that these verbs show the existence of different types of identities for reflexive verbs and R&R's identity condition does not apply to Japanese verbs. For example, *zi*-verbs are often used without *zibun* as illustrated in (113-4).

(113) Taro-ga hanko-o zikyousita.
T-Nom crime-Acc confessed
'Taro confessed (his) crime'.

(114) Hanako-ga musuko-o zimansita.
H-Nom son-Acc boasted
'Hanako boasted (about her) son.

Since the prefix *zi* has the meaning 'self', the object of the *zi*-verbs is always interpreted as belonging to the subject NP.

There is another word for 'self' *ziko*, which attaches to verbs, detransitivizing them. *Ziko* can never be added to the verbs exemplified in (90), namely verbs which are *not* intrinsically reflexive. Most of the intrinsically reflexive verbs can attach *ziko*. Examples of *ziko*-verbs are shown in (115).

(115) hihansuru 'criticize' ziko-hihansuru
syoukaisuru 'introduce' ziko-syoukaisuru
bengosuru 'defende' ziko-bengosuru
manzokusuru 'satisfy' ziko-manzokusuru

(116) a. Taro$_i$-ga zibun$_i$-o bengosita.
T-Nom self-o defended

b. Taro$_i$-ga ziko$_i$-bengosita.
T-Nom self-defended.
'Taro defended self'.

When morphemes *zi* or *ziko*, meaning 'self', are inside of the verbs or attached to the verbs, they seem to license reflexivity. This may be related to verbal reflexivity proposed by Lidz in 3.3. This will not be discussed at this point, since this is a different type of reflexivity from that of a *zibun*-binding coindexing analysis based on R&R's study.

4.5. Conclusion

Thus far *zibun*-binding has been examined with respect to coindexing. Grammaticality of either local or long distance binding depends on predicates, namely if the predicate is reflexive-marked or not. When the SELF anaphor *zibun-zisin* appears as an argument of the syntactic predicate, the predicate is reflexive-marked. *Zibun-zisin* is usually locally bound. The SE anaphor *zibun*, on the other hand, is not a reflexive marker, hence usually long distance bound. There are, however, many cases where local binding of *zibun* is acceptable, which was problematic in the standard binding theory. *Zibun* can be locally bound when its predicate is intrinsically reflexive-marked. Thus, zibun-binding facts are successfully accounted for R&R's binding conditions and modified chain condition.

There is, however, a limit when explaining all *zibun*-binding facts in syntax. The perspective of the speaker or the center of the utterance has to be considered in those cases. Further research is needed from a discourse point of view.

Finally, it was noted that there are other type of reflexivity in Japanese. As was seen in the last chapter, that which licenses reflexivity varies. As for verbs that do not contain any reflexive morpheme are concerned, a predicate is reflexive when its arguments are coindexed.

Chapter 5 Acquisition of *Zibun*-binding[14]

5.0. Introduction

This chapter explores *zibun*-binding from an acquisition aspect. When the standard binding theory was a principle idea, it was generally assumed that children had to learn which lexical elements were anaphors and which were pronominals. As R&R develop a new binding theory, the assumption of the acquisition theory has been also changed. Under R&R's binding theory, it appears that children have to learn the contrast between intrinsic and non-intrinsic reflexives. This chapter contains of the examination of whether Japanese children distinguish the intrinsic and non-intrinsic reflexives, when they learn the SE anaphor *zibun*.

Section 2 discusses the previous studies in acquisition with Icelandic and Danish data that divide verbs into two types, depending on whether the verb is intrinsic reflexive or not. Section 3 addresses the study of Japanese acquisition conducted to explore children's knowledge of reflexivity.

5.1. Acquisition on binding

There have been many studies conducted on the acquisition of binding in different languages. This section will discuss previous studies that seem to support the prediction of the acquisition of *zibun* by Japanese children.

[14] This chapter is based on the term paper submitted to the Psycholinguistics course.

First, a hypothesis called the subset principle will be discussed. Subsequently, two studies concerning verb distinction in different languages are reviewed. One is a study in Icelandic by Sigurjónsdóttir (1992), and the other is a study in Danish (1994) by Jakubowicz.

5.1.1. The Subset Principle

Berwick (1982) proposes the subset principle, claiming that in the process of parameter setting, the parameter value that corresponds to the narrowest language compatible with the evidence is chosen. This leads to the idea that the child in the early stage of acquisition might be expected to choose an antecedent for an anaphor in a local domain, even in those languages which allow long-distance binding of anaphors, such as Icelandic, Dutch, Chinese and Japanese. Some of the studies on binding produce positive data for this hypothesis. Among them, Chein and Wexler (1987) studied Chinese children, Lee and Wexler (1987) studied Korean and Jakubowicz and Olsen (1988) studied Danish.

The Chinese simplex anaphor *zizi* takes a local or a long distance antecedent. The study by Chein and Wexler shows that children older than 4;0 years old, as well as an adult control group, preferred a local antecedent for anaphor more than 90% of the time. The adult results indicate that there is something about the grammar (or pragmatics) of the language that makes the local response preferable.

The Korean study by Lee and Wexler shows that the preferable local response was obtained in act-out task with children, while adult controls bound *caki* to the long distance antecedent. Children preferred the local antecedent 65% of the time at the age of

3;6, and this preference had increased to almost 100% at the age of 4;6. Adults chose the long distance antecedent about 62% of the time.

Finally, Jakubowicz and Olsen note that Danish-speaking children picked the local antecedent 65-93% of the time at the age of 3;0-7;6, while adults chose the correct long distance referent all the time. In the Danish test sentence, long distance binding was the only grammatical option.

These three studies above provided conclusive evidence for the subset principle. However, on contrast, Hyams and Sigurjónsdóttoir, who studied Icelandic children, came to different conclusions. The result of their experiment showed that Icelandic children consistently prefer the long-distance antecedent to the local antecedent. However, the verb they used for their experiment was not appropriate, since the verb *gafe* 'give' is the verb that is preferably long distance bound. This problem could have made a poor example of the choice of antecedent.

The subset principle is related to the hypothesis Delay of Principle B Effect (DPBE). It says that children show a steady increase in performance with local anaphors, as a function of age, but do not show improvement with pronouns. If children perform better with anaphors, which are locally bound, than they perform with pronouns, which are long distance bound, we can assume that children prefer local binding, when simplex anaphors that can have either long distance or local antecedents are used, such as *zibun* in Japanese, *zizi* in Chinese, *sig* in Icelandic.

5.1.2. Icelandic data

Sigurjónsdóttir (1992) supports R&R's binding theory from an acquisition perspective in Icelandic, which has a SE anaphor *sig*. Icelandic *sig* and Japanese *zibun* behave similarly in the sense that both *sig* and *zibun* could have either LD antecedent or local antecedent in a sentence with a complement clause. She classifies verbs into two types, depending on whether they are reflexive-marked or not, as shown in 3.2.1.

Sigurjónsdóttir conducted an act-out task and judgment task. The first result shows that children prefer local antecedents for *sig*. The large majority (80-90%) of children aged 3;3 to 5;0 chose the local antecedent. This result supports the subset principle.

Another result shows that only 14-17% of the children aged 3;3 to 4;6 allowed both local and long distance interpretations of *sig*, while 80% of adults allowed both. 50-72% of the children allow only locally bound of *sig*. Children do not yet have the logophoric use of *sig*.

Finally, by comparing the children's response patterns in subjective sentences with the *raka*-verbs and the *gefa*-verbs, the Icelandic children seem to be attuned to these lexical differences at an early age (3;3 to 4;0). Around the age of 4;6 to 5;0, many children acquire the transitive entry of the *raka*-verbs. They then realize that *raka*-verbs have a dual lexical entry, whereas the *gefa*-verbs only have one. Sigurjónsdóttir argues that this result supports R&R's new approach and also a hypothesis by Wexler and Chien (1985), saying children allow a local antecedent for pronouns because they do not have access to the pragmatic rule which blocks coreference in this context.

In addition, the developmental date shows that children, like adults, treat *sig* differently depending on whether it is contained in a subjective or infinitive complement

clause also, *sig* with the *gefa*-verbs, behaves like a pronoun in its possibility of taking a local antecedent. These findings support a Chien and Wexler's hypothesis (1990), stating that children understand the syntax principle, but they make mistakes because of processing error, or due to pragmatic factors. Icelandic children have early knowledge of syntactic principles, but have difficulty with the pragmatic rule governing coreference.

In sum, the results show that Icelandic children are attuned to the lexical difference between *raka*-verbs and *gefa* verbs at an early age, and that they know that *sig* can be used logophorically. But young children (under 4 years old) have not yet acquired the transitive entry of the *raka*-verbs and restrict the logophoric use of *sig* to subjunctive complements. Sigurjónsdóttir argues that all of these results are explainable within the R&R framework and illustrate the strongly modular character of binding and its development.

5.1.3. Danish data

Jakubowicz (1994) summarizes an acquisition of reflexives in Danish in the article. The binding facts and the different verb types were discussed in 3.2.2.

To examine the acquisition of *sig* and *sig selv*, three comprehension studies were conducted. Each study had two conditions. The first were test sentences with *sig* and the second was the sentences with *sig selv*. Only [-a] verbs were used in the embedded clause. If the test condition is *sig*, the expression must be long distance bound. The result of these studies shows significant differences between *sig selv* and *sig*. Sentences with *sig selv* were correctly interpreted by all children (aged from 3;0 to 9;11). In contrast, the

responses of sentences with *sig* were significantly lower. Children younger than 9 years old gave correct responses less than 50 % of the time.

Olsen (1992) conducted two production studies. The first study was to elicit sentences with *sig selv* and long distance *sig*. The second study was conducted to elicit sentences with either *sig selv* or locally bound *sig*. The result of the first study showed that children across all ages produced the sentence with *sig selv* much more frequently than the sentence with long distance *sig*. In the second study, children aged 2;0 to 5;0 used locally bound *sig* productively with intrinsically reflexive verbs. Interestingly, no children used *sig selv* in this study.

The Danish study above shows that children distinguish intrinsically reflexive verbs from non-intrinsically reflexive verbs, and they know that only intrinsically reflexive verbs allow *sig* to be locally bound. Children understand and use correctly *sig selv* and locally bound *sig* correctly at the age of 3. They do, however, have difficulty using long distance *sig*. Jakubowicz argues that this is because LD binding is rare in Danish, even in adult speech, and children have little opportunity to confirm *sig* as long distance bound.

5.2. Study of *zibun*-binding acquisition

Few studies have been done on the acquisition of reflexives in Japanese. Among them, Mazuka and Lust (1994) study whether children treat *zibun* as an anaphor or a pronoun, concerning the standard binding theory in mind. As discussed earlier, in the framework of the standard binding theory, *zibun* behaves like both [+anaphor] and [+pronoun]. The results of their study show that children treat *zibun* neither as an anaphor

nor a pronoun. This is because *zibun* is neither of these, but instead a SE anaphor, as we discussed earlier. The important result by Mazuka and Lust, however, indicates that children know the A/A' distinction. We would like to see if Japanese children distinguish two different verb types and also distinguish the A/A' position in my study. In their experiment, an elicited imitation method was used. Children dropped the reflexive *zibun* in non-argument positions much more frequently than *zibun* in argument positions. The children preserve the meaning of *zibun* by adding another NP, when they dropped *zibun* in an argument position. This result suggests that children know the A/A' distinction.

5.2.1. Prediction for an experiment

If the children know there are two types of verbs, they distinguish the verbs that are intrinsically reflexive-marked from the verbs that are not reflexive-marked. When the verbs are reflexive-marked, for example *suki* 'like', children will judge that both local and long distance interpretations of *zibun* are possible. On the other hand, when the verbs are not lexically reflexive marked, for example *tataku* 'hit' or *keru* 'kick', children will choose only long distance binding.

In sentences with reflexive-marked verbs (*suki*-type verb), *zibun* can be either local or long distance bound. In those sentences, children will prefer local antecedents to long distance antecedents, as the subset principle states and also the data in the other languages shows.

In sentences with verbs that are not reflexive-marked (*tataku*-type verb), *zibun* can only have a long distance antecedent, if it is an argument of the syntactic predicate and

forms an A-chain with its antecedent. However, when *zibun* appears as non-argument of the predicate, it can have a local antecedent as well as a long distance antecedent. If children know the A/A' distinction, they will allow the local antecedent of *zibun* to be in the A' position.

5.2.2. Experiment

Materials

Study1

A judgment task was used in study 1. Simplex sentences such as (117a, b) were tested. Children judged whether or not *zibun* refers to *Teddy bear* in each sentence. In the case of (117a), *zibun* cannot refer to *Teddy bear*, since the verb *tataku* 'hit' is not lexically reflexive-marked. On the other hand, *zibun* in (117b) can refer to *Teddy bear*, since the verb *suki* 'like' is intrinsically reflexive. Children were asked questions, from which one could conclude whether both local and long distance binding of *zibun* in (117c and d) was allowed or not. *Zibun* in (117c) can only refer to the subject of the main clause *Teddy bear*, while *zibun* in (117d) can refer to both the subject of the main clause *Teddy bear* and the subject of the embedded clause *imouto* 'sister'. This study tested children's knowledge of different verb types.

(117) a. Teddy bear-ga zibun-o tatai-ta.
Teddy bear-Nom self-Acc hit-Past
'Teddy bear hit self'.

b. Teddy bear-wa zibun-ga sukida.
Teddy bear-Top self-Nom like
'Teddy bear likes self'.

c. Teddy bear-wa [imouto-ga zibun-o tatai-ta] to iimasi-ta.
Teddy bear-Top sister-Nom self-Acc hit-Past Comp say-Past.
'Teddy bear said that his sister hit self'.

d. Teddy bear-wa [imouto-wa zibun-ga sukida] to iimasi-ta.
Teddy bear-Top sister-Top self-Nom like] Comp say-Past
'Teddy bear said his sister likes self'.

Study2

An act-out task was used in test 2 and 3. In this study the complex sentences were tested for two conditions as summarized in Appendix A. One condition tested the sentences with *tataku*-type verbs that do not allow *zibun* to be locally bound; i.e. the verbs are not lexically reflexive marked. The verbs used were *tataku* 'hit' and *keru* 'kick' as summarized in Appendix A. The other condition tested the complex sentence with *suki*-type verbs that allow *zibun* to be either locally or long distance bound; i.e. the verbs are reflexive-marked. The verb suki 'like' was used. These kinds of verbs other than *suki*, such as *kaerimiru* 'reflect' or *hihansuru* 'criticize' are not in a typical children's vocabulary. Therefore only one verb, *suki* was used. In this study, the preference of either local or long distance bound was tested as well as children's knowledge of long distance use of *zibun*.

A Teddy bear and stuffed Koala doll were used for children to show the action of the sentences.

Study3

This study was conducted to test children's knowledge of the A/A' distinction. Only one type of verb was used. *Tataku*-type verbs, that do not allow *zibun* as an argument to be locally bound, were used in complex sentences. There were two conditions. The first condition is sentences where *zibun* was an argument of the syntactic predicate, and the second condition is a sentence where *zibun* is not an argument of the predicate, such as *zibun no heya* 'in self's room'. In addition to stuffed dolls, children also used boxes as rooms, to act-out the message conveyed in the sentences.

Subjects

15 children between ages 3;4 and 8;4 in five groups were tested in all of the studies. All were monolingual Japanese children. The age group and number of the children are shown in (118). 12 adults were also tested.

(118)

	age group	mean age	number
Group 1	3;0 - 4;0	3;8	3
Group 2	4;0 - 5;0	4,4	4
Group 3	5;0 - 6;0	5;5	4
Group 4	6;0 - 7;0	6;3	2
Group 5	7;0 - 8;0	7;4	2

Result

Study1

All children allowed *Teddy bear* to be an antecedent of *zibun* in the sentence in (117b). This result shows that children know that the verb *suki* 'like' allows local binding. On the other hand, 75% of children in Group 1 judged *Teddy bear* in the sentence in (117a) as the possible antecedent of *zibun*, which is not correct. Only 25% of the children in Groups 2 and 3 made the same mistake. Children from Groups 4 and 5 did not make this mistake. Young children do not know that *tataku*-type verbs do not allow the local binding of *zibun*. The performance of children with complex sentences was better. 60% of the children from Group 1 and 40% from Group 2 allow *zibun* to have a local antecedent as well as a long distance antecedent in sentence (118c), though only a long distance antecedent can be allowed. In (118d), only 2 children from Groups 1 and 2 made the mistake of not allowing long distance *zibun*. Most children allowed long distance binding as well as local binding of *zibun*.

Children at the age of 3 have not yet learned the distinction between the two different verb types. They seem to know only local, and not long distance binding. Children can distinguish the difference between two types of verbs at the age of 4, though they make some mistakes. They also know the logophoric use of *zibun* in a sentence with *suki* type verbs.

Study 2

The percentage of the children who chose a long distance antecedent, which is the only correct answer, is shown in (119).

(119)

age group	Group 1	Group 2	Group 3	Group 4	Group 5
%	37	75	100	100	100

Most children know that *zibun* in a sentence with the *tataku*-type verbs can only have a long distance antecedent. Almost all children chose local binding of *zibun* in the sentence with the verb *suki*, as seen in (119), where *zibun* can be either locally or long distance bound. Statement (120) shows the percentage of children who chose the local binding in condition 2.

(120)

age group	Group 1	Group 2	Group 3	Group 4	Group 5
%	100	75	100	78	100

Comparing the results shown in (119) to those in (120), it is clear that children distinguished one type of verb from the other. Children chose the long distance antecedent of *zibun* with *tataku*-type verbs and they chose the local antecedent with the verb *suki*. It was significant that children preferred the local antecedent, in agreement with the subset principle. Study 1 showed all children know *zibun* can be locally bound in the sentence with the verb *suki*. Children preferred the local antecedent, but they knew that the long distance antecedent was also allowed in the sentence with *suki*-type verbs, as the result of study 1 showed. Children prefer local antecedents to long distance antecedents, as the subset principle claims.

Study3

The results of study 3, where *zibun* was tested with only *tataku*-type verbs, is shown in (121). The percentage of children who chose the local antecedent, where either local or long distance antecedents were possible, is indicated.

(121)

age group	Group 1	Group 2	Group 3	Group 4	Group 5
%	100	100	100	50	100

Interestingly, almost all of the children chose the local antecedent. When *zibun* is an argument of the syntactic predicate in the sentence with *tataku*-type verbs, most children from Group 2 through 5 know that *zibun* can be only long distance bound and chose the long distance antecedent, as the results of 1 and 2 showed. When it came to non-argument *zibun*, children preferred the local antecedent. Children must know that *zibun*, which is not an argument of the predicate, can be locally bound, but still prefer to chose the local antecedent.

Discussion

Japanese children are sensitive to different verb-types, though young children have not yet learned the distinction. It is a fact, however, that children perform much better with *suki*-type verbs than *tataku*-type verbs. Those children who know the verb type distinction perform well with all of the sentences. Children seem to be attuned to these lexical differences around the age of 4, as the children's performance shows in studies 1 and 2. Children have the knowledge that *tataku*-type verbs can have only one lexical entry, while *suki*-type verbs can have two lexical entries. Young children, who do not

distinguish the verb differences, have not yet learned the logophoric use of *zibun*. The same result in Icelandic and Danish children was demonstrated in section 3.

Japanese children also know the A/A' distinction. We used different tasks, but Mazuka & Lust's and my study proved the same result. Perhaps the reason why children preferred local binding in study 3 could be explained with a subset principle. Children distinguish A/A' difference and know that both local and long distance antecedents are possible antecedents of *zibun*.

5.3. Conclusion

R&R's new approach to binding claims that reflexivity of a predicate is what imposes the locality condition on anaphors. The Japanese reflexive *zibun* can be analyzed with their approach. There are two types of verbs; one is a verb that is intrinsically reflexive-marked and the other is a verb that is not lexically reflexive-marked. This distinction contributes to the reflexive whether it is locally or long distance bound.

The Japanese children seem to have the knowledge of different verb type distinctions. Children as early as age 4 know that verbs, which are intrinsically reflexive-marked, can be either local or long distance bound, while verbs which are not lexically reflexive-marked can be only long distance bound.

The result, that children know this distinction between the different verb types, is the same in Icelandic and Danish studies. This fact must be important, when considering Universal grammar. The results of the studies in three languages, discussed in this chapter, support R&R's reflexivity analysis.

Appendix A

Condition 1

Teddy bear-wa koala-ga zibun-o tataita to iimasita.

Teddy bear-Top koala-Nom self-Acc hit Comp said

'Teddy bear said that koala hit self'.

Teddy bear-wa koala-ga zibun-o ketta to iimasita.

Teddy beat-Top koala-Nom self-Acc kicked Comp said.

'Teddy bear said that koala kicked self'.

Condition 2

Teddy bear-wa koala-ga zibun-ga sukida to iimasita.

Teddy bear-Top koala-Nom self like Comp said

'Teddy bear said that koala likes self'.

Appendix B

Teddy bear-wa koala-ga zibun-no ningyou-o tataita to iimasita.

Teddy beat-Top koala-Nom self-Poss doll hit Comp said

'Teddy bear said that koala hit self's doll'.

Teddy bear-wa koala-ga imouto-o zibun-no heya de tataita to iimasita.

Teddy bear-Top koala-Nom sister-Acc self-Poss room in hit Comp said

'Teddy bear said that koala hit his sister in self's room'.

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