

# Pragmatic Reduction of the Binding Conditions with respect to Anaphora Interpretations in English\*

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This paper argues in favor of using a set of Gricean maxims to account for preferred interpretations of English anaphora. The distribution of English reflexives has generally been explained in purely structural terms in Chomsky's binding theory. Chomsky's basic idea is that reflexives and pronouns are in complementary distribution. However, there has been a longstanding awareness of the fact that there are a large set of marginal occurrences of reflexives which are not directly predicted by the general typology of the binding theory. Well-known cases include 'picture-noun reflexives,' 'long-distance reflexives,' and 'reflexives with split antecedents.' In this paper, we will show why we need to resort to semantic/pragmatic considerations to weigh the acceptability of the problematic cases mentioned above. Specifically, we will endeavor to make the following points: (i) that syntax, semantics, and pragmatics are interconnected to determine the distribution and interpretation of English anaphora; and (ii) that the distinctive and mysterious behavior of the problematic English reflexives can be accounted for straightforwardly by the systematic interaction of neo-Gricean pragmatic principles, such as the Q-, I-, M-principles.

**Key words:** anaphora, reflexive, conversational implicature, pragmatic principle

## 1. Introduction

Over the last four decades, research into the nature of natural lan-

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guage has frequently focused on the distribution and interpretation of anaphora (Safir, 2004, p.1).<sup>1)</sup> It has commonly been assumed that simple generalizations determine the pattern of anaphora and that the relation between the possible antecedents and anaphoric forms can be accounted for in purely structural terms. The central line of work in Chomskyan generative grammar held to the view that where a reflexive can be coindexed with a certain NP, no other pronoun can be coreferential with this NP. It is worth noting that the complementarity between reflexives and pronouns within Chomsky's generative grammar is captured by the notion of the governing category which is uniformly defined both for reflexive-binding and the pronominal disjoint reference principle (Chomsky, 1981, 1986; Reinhart, 1983; Kim, 2003; Safir, 2004). The distributions of anaphors and pronominals are treated by the following binding conditions:

- (1) Principle A: An anaphor (reflexive and reciprocal) is bound (i.e. coindexed and c-commanded) in its governing category.<sup>2)</sup>
- (2) Principle B: A pronominal is free in its governing category.

These simple principles explain why *Tom* can be the possible antecedent of *himself* in (3), but not in (4).

- (3) a.  $Tom_i$  hates [ $himself_i/*him_i$ ].  
 b.  $Tom_i$  washed [ $himself_i/*him_i$ ].
- (4) a.  $Tom_i$  said Mary hates [ $*himself_i/him_i$ ].  
 b.  $Tom_i$ 's mother hates [ $*himself_i/him_i$ ].

However, cross-linguistic comparisons have revealed that anaphoric el-

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1) *Anaphora* refers to the phenomenon whereby one linguistic element that lacks a clear independent reference (i.e. an anaphoric element) can pick up reference through connection with another linguistic element (i.e. an antecedent) (Levinson, 1987; see also Lust, 1986 and Huang, 2000). According to this definition of anaphora, zeros (i.e. empty categories), reflexives, reciprocals, and pronouns can be employed as an anaphoric element.

2)  $\alpha$  is the governing category for  $\beta$  if and only if  $\alpha$  is the minimal category containing  $\beta$  and a governor of  $\beta$ , where  $\alpha = NP$  or  $S$  (Chomsky, 1981, p.188).

ements in different languages pattern in different ways, undermining the empirical generalizations the binding theory was based on (Koster and Reuland, 1991). Furthermore, a number of articles and books on anaphora have also proved that even in languages like English the distributions of anaphors and pronominals actually overlap to a large extent (Kuno, 1987; Zribi-Hertz, 1989; Reinhart and Reuland, 1993; Pollard and Sag, 1992; Safir, 2004, among others). Well-known cases include the following examples:

- (5) a. Tom<sub>i</sub> thought that pictures of [him<sub>i</sub>/himself<sub>i</sub>] would be on sale.  
 b. Tom<sub>i</sub> said that there was a picture of [him<sub>i</sub>/himself<sub>i</sub>] at the studio.
- (6) a. Tom<sub>i</sub> hid the book behind [him<sub>i</sub>/himself<sub>i</sub>].  
 b. Tom<sub>i</sub> pulled the blanket over [him<sub>i</sub>/himself<sub>i</sub>].
- (7) a. She<sub>i</sub> told him he should marry a woman like [her<sub>i</sub>/herself<sub>i</sub>].  
 (Stirling and Huddleston, 2002, p.1494)  
 b. Ann<sub>i</sub> suggested that the reporter pay both the victim and [her<sub>i</sub>/herself<sub>i</sub>] for their time. (Stirling and Huddleston, 2002, p.1494)

There have been two opposite responses to this set of problematic data. On the one hand, various attempts have been made to rescue the principles A and B by amending them so that all marked cases could be accounted for within syntactic theory. On the other hand, it has been claimed that those same marked occurrences of reflexives are outside the scope of syntax and involve principles pertaining to discourse grammar (Zribi-Hertz, 1989, p.695; see also Kuno, 1987; Pollard and Sag, 1992; Yi, 2001).

In this article we offer an account of English anaphora interpretations that integrates the diverse perspectives pertaining to this subject. Agreeing with Zribi-Hertz (1989) and Pollard and Sag (1992), we argue that the problematic occurrences of reflexives mentioned above are exempt from grammatical constraints such as binding principles.<sup>3)</sup>

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3) For this reason, Pollard and Sag (1992) named these reflexives 'exempt anaphors.'

However, we depart from them in claiming that in order to show the complete picture of anaphora distributions (i.e. reflexives, zero anaphora, and pronominal anaphora), we should not simply segregate exempt- and non-exempt anaphors as irreconcilably distinct categories. Rather, since the same lexical form is used in both cases, it would be a lot more preferable if we could give a unified account of the apparent differences of these two groups.

The article is organized as follows. Section 2 outlines the distribution of English reflexives that theories of anaphora must deal with. Section 3 forms the main part of our analysis. We argue that the marked occurrences of long distance reflexives in English can be accounted for if we refer to a generalized conversational implicature. More specifically, following Levinson (1987), we advocate using a set of revised Gricean maxims to account for preferred interpretations of English reflexives, pronouns, and zeros, and in so doing, we raise the possibility that a Gricean theory of implicature provides a systematic partial reduction of the Binding Conditions B and C.<sup>4</sup> We also intend to show that even in languages like English which has been known as a syntactic language as opposed to a pragmatic language like Korean, not only the occurrences of marked reflexives but also the distributions of ordinary pronouns can be largely accounted for by independently motivated Gricean principles. Finally section 4 summarizes the argument.

## 2. Properties of Anaphora and Theoretical Issues

Generally speaking, it has been widely accepted that English reflexives manifest the following properties:

- (8) a. A reflexive pronoun must have a coindexed, c-commanding antecedent NP within its minimal domain.
- b. Reflexives are in complementary distribution with pronouns.
- c. Discourse binding of reflexives is not allowed.
- d. Reflexives cannot take split antecedents.

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4) Principle C says that an r-expression is free. Here r-expressions stand for inherently referential expressions.

Within the framework of generative grammar, the properties of reflexives in (8) are borne out as follows: (a) is what Principle A requires. Therefore, due to this property, long-distance binding of reflexives is not allowed. (b) is due to the interaction of Principle A and B. (c) is the direct outcome of (a). (d) follows from (a) because split antecedents would not qualify as a single binder (Pollard and Sag, 1992, p.263). As we briefly sketched in the previous section, however, none of these beliefs can be maintained in the face of the facts. Let us consider so-called 'picture noun reflexives' first:

- (9) a. John<sub>i</sub> said to Mary that there was a picture of [himself<sub>i</sub>/him<sub>i</sub>] in the post office.  
 b. John<sub>i</sub> heard from Bill that pictures of [himself<sub>i</sub>/him<sub>i</sub>] would be on sale.<sup>5)</sup>  
 c. The picture of [herself<sub>i</sub>/her<sub>i</sub>] on the front page of the Times confirmed the allegations Mary<sub>i</sub> had been making over the years. (Pollard and Sag, 1992, p.264)  
 d. Those pictures of [himself<sub>i</sub>/him<sub>i</sub>] taught John<sub>i</sub> an important lesson. (Yi, 2001, p.372)

Sentences (9a)-(9c) indicate that reflexives do not have to be bound in their minimal domain: i.e. long-distance binding is allowed. Examples (9c) and (9d) show that the c-command requirement between antecedents and reflexives is too strong in English. And all the sentences above prove that reflexives can be in free variation with pronouns, contradicting the second belief about reflexives indicated in (8b).

The prediction that discourse binding of reflexives is not allowed is easily falsified by the presence of the data as follows:

- (10) a. **He<sub>i</sub>** [**Zapp<sub>i</sub>**] sat down at the desk and opened the drawers. In the top right-hand one was an envelope addressed to **himself<sub>i</sub>**. (Lodge, 62, quoted in Zribi-Hertz, 1989, p.716)  
 b. **John<sub>i</sub>** was furious. The picture of **himself<sub>i</sub>** in the museum had been mutilated. (Pollard and Sag, 1992, p.268)  
 c. **She<sub>i</sub>** was not immediately able to say anything, and even when her spirits were recovered, **she<sub>i</sub>** debated for a short

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5) In this sentence, both the reflexive and the pronoun can be coindexed with *Bill*, too.

time on the answer it would be most proper to give. The real state of things between Willoughby and her sister was so little known to **herself**, that in endeavouring to explain it, she might be as liable to say too much as too little. (Austen SS, 188, quoted in Baker, 1995, p.67)

The reflexive option in the second sentence of the discourse in (10a)-(c) indicates that under the right circumstances, discourse-binding of reflexives is possible in English.

The hypothesis that reflexives cannot have split antecedents is also untenable, as the well-formedness of examples like (11) shows:

- (11) a. Mary<sub>i</sub> showed Paul<sub>j</sub> a nice picture of themselves<sub>i+j</sub>. (Zribi-Hertz, 1989, p.710)  
 b. John<sub>i</sub> collaborated with Bill<sub>j</sub> on a biography about themselves<sub>i+j</sub>. (Okada, 1998, p.61)  
 c. John<sub>i</sub> shared a startling secret with Mary<sub>j</sub> about themselves<sub>i+j</sub>. (Okada, 1998, p.61)  
 d. The picture of themselves<sub>i+j</sub> reminded John<sub>i</sub> of Mary<sub>j</sub>. (Yi, 2001, p.373)

Such examples can be easily multiplied as in (12). A glance at these sentences suffices to prove that the distribution of reflexive pronouns in real life is far from being restricted as binding principles predict.

- (12) a. Mary<sub>i</sub> whispered secret things to Paul<sub>j</sub> about themselves<sub>i+j</sub>. (Zribi-Hertz, 1989, p.710)  
 b. Both John<sub>i</sub> and Bill<sub>j</sub> are famous scholars, and they have done a lot of interesting research together in the past. This semester, John<sub>i</sub> asked Bill<sub>j</sub> to come to his university and to lecture with him about themselves<sub>i+j</sub> in his class. (Okada, 1988, p.68)  
 c. John<sub>i</sub> told Mary<sub>j</sub> that washing themselves<sub>i+j</sub> would be fun. (Hornstein, 1999, p.91)

The observations so far make it clear that none of the propositions about the distribution of English reflexives presented in (8) can be maintained when considering examples in real life. The properties of the problematic reflexives can be summarized as follows:

- (13) a. Some reflexives don't have to be c-commanded by their antecedents.  
 b. Some reflexives are in free variation with pronouns.  
 c. Some reflexives can be long-distance bound or discourse bound.  
 d. Some reflexives allow split antecedents.

How then do we distinguish those reflexives which are in complementary distribution with pronouns from the marked ones, exemplified in (9)-(12)? There is one simple generalization here: i.e. none of the problematic reflexives are coarguments of their antecedents. In other words, complementarity between reflexives and pronouns can be violated when the reflexives and their antecedents are not coarguments (see Pollard and Sag, 1992; Reinhart and Reuland, 1993, for the same line of arguments).

Several solutions have been proposed for the empirical coverage of the problematic reflexives. The first line of approach is an attempt to rescue the principles A and B by amending them so that all marked cases could be accommodated within Chomskyan generative grammar (see Stowell, 1983; Hintikka and Kulas, 1985; Chomsky, 1986; Yang, 1989; Katada, 1991; Lasnik, 1994). However, technical details aside, these syntactic approaches are not sufficient to specify the domain or the set of potential antecedents for the marked reflexives (Huang, 2000, p.130).<sup>6</sup> Nor do they have anything to say about the selection of the actual antecedents of those reflexives which involves not only syntactic but also semantic and pragmatic factors.<sup>7</sup>

On the other hand, there have been several attempts to appeal to discourse principles (e.g. Zribi-Hertz, 1989; Pollard and Sag, 1992; Yi, 2001) in order to take care of the occurrences of marked reflexives (see also Kuno, 1987). Common to this line of approaches is that they draw a clear-cut line between syntax and discourse. They claim that there are two types of reflexives, namely exempt reflexives and non-exempt reflexives. It is the non-exempt reflexives that are subject to syntactic constraints such as binding principle A. The exempt reflexives, on the contrary, are subject to discourse principles, being *exempt* from syntactic

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6) For example, the animacy condition which says that antecedents of long-distance reflexives are in general animate cannot be accounted for only in terms of structural conditions.

7) We will return to this point in the next section.

rules. Even though it could be agreed upon that syntactic structure provides only a part of the information needed to interpret a sentence, this line of approach is not without problems. For they could provide only a partial account for the binding properties of anaphora by segregating exempt- and non-exempt anaphors as irreconcilably distinct categories. Thus we need to consider the possibility of a more general account which could show the complete picture of anaphora interpretations in English.

### 3. Pragmatic Approaches to Anaphora Interpretations

#### 3.1. A Neo-Gricean Pragmatic Account of Anaphora

A pragmatic theory of anaphora should consider what the speakers and listeners have to do to use and interpret anaphoric expressions such as reflexives and pronouns, and it should determine the role of pragmatic knowledge, as opposed to strictly linguistic knowledge (Blackwell, 2000, p.389-390). As speakers of a language, we have the ability to distinguish what is said from what is actually meant. Therefore, if a man asks a woman, 'Would you like to go see a movie tonight?', and if she responds by saying 'Well, I have lots of things to do,' he should be able to draw inferences about what is meant by what is said. What we can infer from her answer is that she doesn't want to go see a movie with him tonight. Information that is conveyed in this way is called 'conversational implicature' (O'Grady and Archibald, 2000, p.253).

In the theory of conversational implicature, Grice (1975) suggests that in our talk exchange, there is an underlying principle which speakers and listeners are expected to be aware of. He named this principle the cooperative principle and he further subdivided it into four maxims, summarized in (14) and (15). What the cooperative principle and its following maxims ensure is that in an exchange of conversation the speaker should provide the right amount of information and that the interaction between the speaker and the listener should be conducted in a sincere, efficient, relevant, cooperative way.

- (14) Cooperative Principle: Make your conversational contribution cooperative.



## (15) Conversational Maxims:

- a. Quality: Be truthful.
- b. Quantity: (i) Don't say less than is required.  
(ii) Don't say more than is required.
- c. Relevance: Be relevant.
- d. Manner: Be brief and orderly.

Assuming that both the speaker and the listener are observing the principle and its component maxims, Grice suggests that the deliberate violation of these maxims gives rise to a conversational implicature. Thus when what is meant goes well beyond the literal meaning of what is uttered, the maxims derive their explanatory power and give an account of the reason why it happens (see Kearns, 2000, p.254).

There have been several linguists who have tried to account for anaphora use and interpretation in various languages by utilizing Gricean principle and maxims (see Reinhart, 1983; Levinson, 1987, 1991; Huang 1991, 2000; Kim, 1993; Blackwell, 2000). Among them, Levinson (1987) incorporates a revised Gricean procedure of implicatures to deal with the distribution and interpretation of anaphora. He proposes a set of neo-Gricean speaker and listener strategies for anaphora interpretations by reducing the original Gricean maxims into three principles, which he dubs the Q(uality)-, I(nformativeness)-, and M(anner) principles.

The Q-principle tells the speaker to make the informationally strongest statement s(he) can, while the listener should assume that the speaker has done so (Blackwell, 2001, p.903). This principle can account for anaphora interpretations in environments where a reflexive can be used in place of a semantically weaker pronoun. Thus wherever a reflexive (the semantically stronger expression) could occur, the use of a pronoun (the semantically weaker expression) will Q-implicate disjoint reference (Levinson, 1987, 1991).

The I-principle, on the other hand, says that the form with maximum informative value with minimum effort is what one would use if one could (Safir, 2004, p.63). Levinson's notion of minimization refers to semantic minimization. Therefore, a preference for coreferential readings is in line with this principle (Blackwell, 2000, p.392). Assuming that a pronoun is an unmarked instance of the coreferential reading (see Levinson, 1991, p.8-9), the use of a semantically general pronoun, where a semantically stronger and more specific reflexive is not available, will induce a

stereotypical specific interpretation, namely the coreferential reading.

The M-principle, which overrides the I-principle, says that a more prolix (marked) form indicates that the less prolix (less marked) form is not applicable. What we need to remember here is that unlike the Q-principle<sup>8)</sup> the M-principle deals with paired expressions that contrast in surface form rather than semantic informativeness. With regard to anaphora interpretations, where a pronoun could be used to express coreference, use of a more prolix and marked NP would lead the listener to infer that the coreferential reading associated with the unmarked counterpart was not intended.

In what follows, we will test the viability of Levinson's neo-Gricean pragmatic implicatures for anaphora interpretations in English and in so doing deal with the question of whether English native speakers' interpretations of anaphoric elements support patterns of anaphora interpretation predicted by Levinson (1987).

### 3.2. Application

It has been pointed out that anaphora involves syntactic, semantic, and pragmatic factors and languages must differ with each other to the extent to which syntax, semantics, and pragmatics interact (see Huang, 1991, 2000). For example, there seems to exist a class of languages (so-called pragmatic languages) such as Chinese, Japanese, and Korean in which pragmatics is considered to play a central role. On the other hand, in some languages such as English and German, rules of grammatical structure instead of pragmatic knowledge are thought to play a major role. But even in those syntactic languages when it comes to anaphora interpretations, the contribution of pragmatics cannot be denied and actually it seems much more fundamental than generative linguists have believed. In order to show how the distribution of anaphora in syntactic languages like English can be given a better account in terms of a neo-Gricean pragmatic theory of conversational implicatures, we need to look at the marked occurrences of English reflexives which are problematic to purely syntactic approaches. Consider the examples below:

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8) The Q-principle induces a contrastive interpretation from tight contrast sets of equally brief, equally lexicalized relations.

(16)=(9)

- a. John<sub>i</sub> said to Mary that there was a picture of [himself<sub>i</sub> /him<sub>i</sub>] in the post office.
- b. John<sub>i</sub> heard from Bill that pictures of [himself<sub>i</sub>/him<sub>i</sub>] would be on sale.
- c. The picture of [herself<sub>i</sub>/her<sub>i</sub>] on the front page of the Times confirmed the allegations Mary had been making over the years. (Pollard and Sag, 1992, p.264)
- d. Those pictures of [himself<sub>i</sub>/him<sub>i</sub>] taught John<sub>i</sub> an important lesson. (Yi, 2001, p.372)

The viability of Levinson's theory relies on the following assumptions. First, pronouns will be preferred over reflexives when coreference is intended, unless marked otherwise, due to the I-principle. Second, when two different NP-types occur in a given context, they should be in complementary distribution due to the Q- and M-principles. Contrary to the predictions of the neo-Gricean framework, however, pronouns and reflexives in (16) are in free variation. That is, the use of a pronoun where a reflexive could have been used, does not implicate a non-coreferential interpretation.

Here, we should point out the crucial difference between the pragmatic analysis sketched here and a purely syntactic account. That is, while the latter marks each occurrence of a pronoun which is in free variation with a reflexive as ungrammatical, the former is not necessarily embarrassed by the failure of such complementary distribution. For the Q-/M- inferences to disjoint reference are only defeasible implicatures.<sup>9)</sup> Therefore, if we can show that there are systematic reasons why the given implicatures failed to arise (i.e. they are cancelled) in these cases, the marked occurrences of reflexives would no longer be a problem.

The problem, then, is what causes the apparent neutralization of the contrast between pronouns and reflexives in some English sentences. Common to all the problematic cases mentioned above is that where we expect a non-reflexive pronoun, a reflexive being syntactically dis-

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9) According to Grice (1975), the distinguishing properties of conversational implicatures are (i) defeasibility (cancelability), (ii) non-detachability, (iii) calculability, (iv) non-conventionality, and (v) reinforceability.

allowed, we obtain both a reflexive and a pronoun. Considering such distributional overlap between reflexives and pronouns cross-linguistically, Kuno (1972, 1987) argues that even though both a reflexive and a pronoun refer to the same individual, the (16a) and (16b) sentences do not share the same truth-condition. According to him, wherever reflexives alternate with pronouns in the same context, we can find some subtle meaning differences expressed by choosing a reflexive and a pronoun: i.e. the use of a reflexive may require that the speaker take its antecedent's point of view, while the non-reflexive pronoun allows the normal, deictic, objective point of view (see Kuno and Kaburaki, 1977; Levinson, 1991).

- (17) a. John<sub>i</sub> hid the book behind himself<sub>i</sub>.  
 b. John<sub>i</sub> hid the book behind him<sub>i</sub>.

- (18) a. John<sub>i</sub> pulled the blanket over himself<sub>i</sub>.  
 b. John<sub>i</sub> pulled the blanket over him<sub>i</sub>.

For example, according to Kuno (1972, 1987), (17a) may describe a situation in which John held the book with his hand and put it behind his back, so the book was directly touching him. (17b), on the other hand, implies that there was no physical contact between John and the book: i.e. perhaps John lifted the book and put it on a chair, and he was standing in front of the chair. Similarly, (18a) implies that John put the blanket over his head and covered himself with it, perhaps intending to hide under it. On the other hand, (18b) does not imply such direct action with the whole body of John as a target of action.

The association of a subtle meaning difference in *point of view* with the occurrence of reflexives can also handle some more exceptional reflexives as in (19):<sup>10)</sup>

- (19) a. John<sub>i</sub> said to Mary that there was a picture of himself<sub>i</sub> in the post office.

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10) Even generative grammarians admit the fact that anaphora distributions might be correlated with semantic properties such as a *point of view*. But their crucial assumption is that even these semantic properties follow from structural properties instead of the other way around (see Zribi-Hertz, 1989, for related discussions).

b. John<sub>i</sub> said to Mary that there was a picture of him<sub>i</sub> in the post office.

(20) a. \*John said to Mary<sub>i</sub> that there was a picture of herself<sub>i</sub> in the post office.

b. John said to Mary<sub>i</sub> that there was a picture of her<sub>i</sub> in the post office.

(19a) may describe a situation in which the sentence is uttered from John's point of view. But the use of a pronoun in (19b) and (20b) indicates that the sentence is uttered from the normal, objective point of view. (20a) is unacceptable because it is difficult to imagine a situation where the sentence is uttered from Mary's point of view, when she is not a part of the reported event. The same reasoning can also be applied to discourse bound reflexives, as exemplified in (10) in section 2.

In this way, all the marked cases mentioned above are proved not marked any more since although a reflexive and a pronoun appear to be in free variation on a superficial level, their semantic/pragmatic environments are still distinct: a reflexive is chosen when its antecedent's point of view is adopted by the speaker. And a pronoun is used otherwise. As a result, the occurrence of a reflexive where it is not syntactically permitted does not implicate disjoint reference.

Things get more complicated when we note that the account based on the alternation of point of view cannot be extended to such examples as (21b) and (22b).

(21) a. John<sub>i</sub>'s fulsomeness embarrassed the Baron as much as [himself<sub>i</sub>/him<sub>i</sub>]. (Zribi-Hertz, 1989, p.718)

b. John<sub>i</sub>'s friend criticized the Baron as much as [\*himself<sub>i</sub>/him<sub>i</sub>]

(22) a. Pictures of [himself<sub>i</sub>/him<sub>i</sub>] don't bother John<sub>i</sub>. (Kuno and Takami, 1993, p.155)

b. Pictures of [\*himself<sub>i</sub>/him<sub>i</sub>] don't portray John<sub>i</sub> well. (Kuno and Takami, 1993, p.155)

Suppose we argue that the use of a reflexive which is not c-commanded by its coargument antecedent in (a) sentences is acceptable because the sentences are uttered from the antecedent *John's* point of view. Then

we have no reason to rule out (b) sentences which have exactly the same structures. The point is that if we could take *John's* point of view when uttering the sentences (21a) and (22a), we should be able to describe (21b) and (22b) from *John's* point of view, too. As a result, the neutralization of the opposition between a reflexive and a pronoun should be allowed. This is exactly the wrong prediction and our job is to explain what causes the difference in the (a) sentences and (b) sentences. The answer lies in whether the sentences involve psychological predicates.

The psychological predicate phenomenon is cross-linguistically well attested. Common to psych-verb constructions is that they have a special type of verb called a 'psychological predicate' such as *worry* and *depress*, and that these sentences all represent the experiencing individual's direct internal feeling. And the experiencer, as the one who feels the relevant feeling, is the most optimal element to be coindexed with the reflexive in the sentence. Therefore, we can guess that an experiencer whose feeling is reflected in the context can be an optimal antecedent of a reflexive.<sup>11)</sup> Now we are in a position to explain why (21b) and (22b) are not acceptable when a reflexive is used: They do not involve psychological predicates, so the reflexive in a complement clause fails to be coindexed with *John*.

Now we can point out semantic/pragmatic factors which cause the neutralization of the contrast between reflexives and pronouns in the examples (16)-(21): (i) the point of view assumed by a speaker with respect to sentences, and (ii) one whose internal feeling is being reported.<sup>12)</sup> Given that these semantic/pragmatic ingredients are what underlie the notion of logophoricity<sup>13)</sup> (Sells, 1987), what is suggested by the choice of a reflexive in those sentences as opposed to the use of a pronoun may be a contrast with the ordinary, non-logophoric interpretation.

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11) Various solutions have been put forward in the generative literature for the account of psych-verb constructions (e.g. Pesetsky, 1987; Belletti and Rizzi, 1988). However, it turns out that their analyses are not without problems. Interested readers may refer to Kuno and Takami (1993), Huang (2000), and Yi (2001), among others.

12) In other words, the antecedents of such reflexives must be the participants of the discourse situation (Okada, 1998, p.77).

13) The concept of 'logophoricity' was introduced in studies of African languages, where there are special anaphoric pronouns, called logophoric pronouns, which refer to the individual whose speech, thoughts, or feelings are reported or reflected in a given linguistic context in which the pronouns occur (Clements, 1975, p.141).

At this point, we had better explain how to systematically relate these semantic/pragmatic ingredients to the present analysis in terms of implicatures. Now we have two options to consider. First, in line with Levinson (1991), we can argue that English reflexives encode two meaning elements, coreference and logophoricity. Then the use of a pronoun will be warranted if the speaker wishes to avoid coreference, logophoricity, or both. Given the assumption that logophoric pronouns are semantically stronger than reflexives (see Huang, 2000, for a related discussion), what we will get by the Q-implicature from the contrast between reflexives and pronouns will be coreference, or logophoricity, or both. One immediate question arises: why in the minimal domain, the contrast in logophoricity never arises? Consider the following:

(23) John<sub>i</sub> loves [himself<sub>i</sub>/\*him<sub>i</sub>].

English is not the only language which shows this characteristic. Reinhart and Reuland (1993) claim that in languages allowing long-distance reflexives, a logophoric contrast still does not arise in a minimal domain. As a result, pronouns are still excluded in the local coargument contexts like (23).

To capture this fact, we can bring back Principle B of the binding theory into our grammar, which surely is an undesirable move. Or as Huang (1991) suggests, we can derive the principle B effect from Farmer and Harnish's (1987) 'Disjoint Reference Presumption' like (24):<sup>14</sup>

(24) Disjoint Reference Presumption (DRP): The coarguments of a predicate tend to be interpreted as disjoint in reference.

The DRP has the effect of bringing Principle B into our grammar, the only difference being that the assumption of disjoint clausemate arguments of the DRP can only be a tendency rather than a grammatical

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14) This line of analysis is advocated in Kim (2003), which stresses the point that the contribution of pragmatics to anaphora interpretations should not be underestimated. Kim (2003) assumes that the reflexives of both English and Korean convey two meaning elements 'coreference' and 'logophoricity.' In the present work, however, it will be suggested that contrary to the claim of Kim (2003), English reflexives do not encode 'logophoricity' as their basic meaning ingredient. Rather, 'logophoricity' is one of the marked messages which we can get as a result of using a more prolix reflexive pronoun where a non-reflexive pronoun is expected.

condition. The DRP is motivated in order to account for the anaphoric patterns of languages which lack grammatically specified reflexives altogether (see Huang, 1991). In the case of languages like English, however, the effect of both the DRP and Principle B is derived by using the Q-principle in coargument contexts, rendering both of them redundant. And this is sufficient to read the pronoun as disjoint with a coargument antecedent. Then the only motivation for positing the DRP in English is to account for the absence of a logophoric contrast in the minimal domain as in (23). Therefore, we need to consider a possible account which can take care of the given phenomenon without positing the DRP.

As an alternative, let us suggest that English reflexives do not encode two meaning elements, coreference and logophoricity. Rather, we can claim that English reflexives have only one meaning element, i.e. coreference, and appeal to the systematic interaction between the I- and M-principles to account for the Principle B effect. Then what we will get by the Q-implicature is always a non-coreferential reading. The neutralization of the contrast between reflexives and pronouns, then, can be attributed to the M-principle instead, which says a more prolix (marked) form indicates that the less prolix (less marked) form is not applicable. The reasoning is that the use of a reflexive (a more prolix and marked form) when a pronoun (a less marked form) is expected will give an implication that the unmarked counterpart (i.e. coreference) was not intended: By using the marked reflexive, the speaker wants to convey a marked message, which can be logophoricity, or something yet to be discovered.<sup>15)</sup> Note that this line of analysis is surely more preferable than the first option because we don't need to stipulate any extra mechanism to handle the given phenomenon.

Now we can give a full account of the basic pattern of English anaphora interpretations.

- (25) a. Where the syntax permits a direct encoding of coreferentiality (i.e. when a reflexive is c-commanded by a coargument), the use of an informationally weaker expression (e.g. a non-re-

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15) There has been a longstanding awareness of the fact that reflexives in English could be used as a means of contrastive emphasis. This notion of 'contrastive emphasis,' then, might be one of the marked messages implicated by the M-principle. Interested readers may refer to Zribi-Hertz (1989) and Baker (1995), Kim (2003), among others.



- flexive pronoun) will Q-implicate a non-coreferential interpretation.<sup>16)</sup>
- b. Otherwise, the semantically general, minimally informative expression will favor a coreferential interpretation by the I-principle.
- c. The use of a marked form (e.g. a reflexive where a pronoun might have been used) will M-implicate logophoricity, or something yet to be discovered.<sup>17)</sup>

### 3.3. The Interaction between Zeros and Overt NPs

So far we have deliberately avoided the issue of how zeros and overt pronouns interact with each other. In an attempt to show that the pragmatic theory of anaphora advanced here can be extended to account for the interaction of zeros and overt pronouns, we will next turn to the distribution of zeros and their interactions with overt NPs in English.

(26) a. John<sub>i</sub> expects  $\emptyset_i$  to win.

b. John<sub>i</sub> expects **himself<sub>i</sub>** to win.

(27) a. John<sub>i</sub> told Mary<sub>j</sub> that  $\emptyset_{i,j}$  washing themselves would be fun.  
(Hornstein, 1999. p.73)

b. John<sub>i</sub> told Mary<sub>j</sub> that **their<sub>i,j</sub>** washing themselves would be fun.

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16) By assuming that our syntax permits a direct encoding of coreferentiality between a reflexive and its antecedent in a coargument context, we reduce the binding principles to Principle A. In other words, all we need in our grammar for the account of anaphora interpretations is Principle A restated in terms of coarguments.

17) The present analysis can be extended to cover the misbehaving reflexives introduced in (9)-(12) as follows: In 'picture noun reflexive' constructions as in (9), reflexives are not syntactically permitted, given that they are not coarguments of the antecedents. Therefore, pronouns are subject to the I-principle, resulting in coreference. However, if the unmarked regular pronoun is not used, but the marked reflexive is used instead, then an M-implicature is created; i.e. not only coreference but also logophoricity as well is intended. In (10), where discourse binding is allowed, the same reasoning will be applied. Given that the antecedent of the reflexive is the individual whose viewpoint or perspective is somehow being represented in a given text, the use of the reflexive where the regular pronoun is expected will M-implicate 'logophoricity.' The split antecedent reflexives such as (11) and (12) can be taken care of by the same M-based analysis as well. Again, the use of the marked reflexive will convey a message that would not have been conveyed by the use of the unmarked regular pronoun. And in this case, the marked message could be either logophoricity or contrastive emphasis, or both. The limit of space, however, disallows us to go into more details. Interested readers may refer to Okada (1998), Yi (2001), and Kim (2003) for related discussions.

In the case of (26b), a zero anaphora is replaced by a reflexive, while in (27b), an overt pronoun is employed instead of a zero form.<sup>18)</sup> From the point of view of the present analysis, the free variation of zero forms and their overt counterparts surely causes some problems: The use of a marked form does not M-implicate a disjoint reference. But notice that although both zeros and overt NPs (i.e. pronouns or reflexives in this case) are interpreted as referring to the same individual, i.e. *John* in (26) and *John* and *Mary* in (27), there is a systematic semantic/pragmatic contrast between the zeros on the one hand, and overt NPs on the other hand. That is, unlike zeros, the overt NPs are used to convey a contrastive emphasis. Therefore, sentence (26b) may mean that 'John expects he himself, rather than anybody else, to win.' Similarly, (27b) can be interpreted as 'John told Mary that John and Mary's washing John and Mary would be fun, rather than other people's washing John and Mary (see Zubin et al, 1991 for related discussions).' Within the neo-Gricean pragmatic framework, the notion of contrastive emphasis associated with the use of an overt NP falls naturally out of the M-principle as follows. The use of an overt NP (a reflexive or an overt pronoun in these contexts) will M-implicate a contrastive interpretation that would not be conveyed by the use of a zero.

Recall that in the previous section we said using a marked form conveys a marked message. The marked message implicated by the M-principle was argued to be 'logophoricity,' or 'something yet to be discovered.' The discussion related to the interaction of zeros and overt NPs further reveals that one of the semantic/pragmatic ingredients, dubbed as 'something yet to be discovered,' could be 'contrastive emphasis.'

Based on the observations so far, we now conclude that the use of a marked form in English, when its unmarked counterpart is available indicates some sort of unexpectedness (see Huang, 2000, p.225). This unexpectedness could be logophoricity, contrastive emphasis, and so on.<sup>19)</sup>

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18) The distribution of zeros such as (26a) and (27a) has attracted many linguists' attentions and in Chomskyan generative grammar it is treated as a distinct category PRO. Some grammarians like Hornstein (1999), on the other hand, claims that the null category must be a pro instead of a PRO. The argument concerning the nature and intrinsic properties of the null category, however, is beyond the scope of the present study.

19) We must make clear the limitation of our present discussion: our aim in this paper is to give a reasonable account to anaphora distributions, and not to predict all the possible distributions of reflexives in English.

#### 4. Conclusion

The present paper has argued in favor of using a set of revised Gricean maxims to explain preferred interpretations of English anaphora. Specifically, we have tried to deal with some of the difficulties of purely syntactic accounts such as Chomsky's binding theory, and in so doing have concluded that the distribution of reflexives, pronouns, and even zeros can be largely accounted for by referring to a generalized conversational implicature such as the Q-, I-, and M- principles.

The interpretation mechanism of English anaphora presented in this paper can be summarized as follows. First, we accept a revised version of Principle A of the binding theory as a rule of grammar: i.e. reflexives must be coindexed with their coargument antecedents.<sup>20</sup> The use of a pronoun in environments where a reflexive can be applied due to Principle A will then Q-implicate a non-coreferential reading. Where the syntax does not permit the use of a reflexive, the use of a semantically general pronoun will I-implicate a coreferential interpretation. The use of a marked form, a reflexive in place of a pronoun, or an overt NP (e.g. pronouns and reflexives) in place of a zero will M-implicate *unexpectedness*, which turns out to be logophoricity, contrastive emphasis, or something yet to be discovered.

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20) Accepting Principle A as a rule of grammar makes the present analysis only a partial reduction of binding conditions.

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