Each other and themselves: Non-native Speakers of English on a Linguistic Tightrope

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Pronoun resolution has engaged a significant attention of linguists for the last few decades, and most of the research has been done in the interpretations of pronouns in English (Finer & Broselow: 1986; White: 1989, 2003; Hirakawa: 1990; Finer: 1991; Thomas: 1991, 1998; McLaughlin: 1998; Akiyama: 2002; Tanis: 2007; Jiang: 2009; Epoge: 2012, etc.) and in other languages (Pica: 1987, 1991; Katada: 1991; Christie & Lantolf: 1998; Yuan: 1998; Tremblay: 2006; Kim, Montrul, & Yoon: 2010, etc.). The pronouns “themselves” and “each other” fall in a subgroup of pronouns which are used when the pronoun is co-referential with the subject of the clause it is used in, as exemplified below.

1. *The students* defended themselves.
2. *John and Paul* embraced each other.

As can be inferred above, the reflexive NP “themselves” and the reciprocal NP “each other” are NPs requiring an antecedent within the same sentence. Moreover, each of these NPs needs to have the right kind of syntactic relationship with its antecedent, from which it receives its interpretation. Thus, under the “Minimalist” model of sentence construction, the interpretation of these pronouns must either be determined (i) syntactically (at some point when a sentence is being constructed) and (ii) semantically (when the completed sentence is assigned a semantic interpretation (meaning)). To this end, the interaction of syntax and semantics in reflexive and reciprocal interpretations means that the interpretation of the reflexive NP “themselves” and
the reciprocal NP “each other” can be fixed either at the sentence building stage or the meaning assignment stage.

Reflexive pronouns, the subgroup of pronouns to which “themselves” belongs, are derived from a pronominalization transformation which replaces a full noun phrase with a reflexive pronoun when two elements in a text are co-referential, as the example below demonstrates.

3. The terrorists starved themselves to death.

In this example, through pronominalization transformation, the full NP “terrorists” is replaced with the reflexive pronoun “themselves.” Consequently, the NP “terrorists” is the antecedent of the dependent NP “themselves.” On the other hand, a reciprocal pronoun such as each other is a term for a bilateral relationship between two elements or entities. In English, reciprocity can be expressed by reciprocal pronouns “each other” and “one another” as exemplified below.

4. Philip and Caroline love each other.

5. Paul, John and Ibrahim do not know one another.

As the foregoing discussion reveals, the use of reciprocal pronouns is subject to the same kind of restrictions as the reflexive pronoun “themselves.” A reflexive pronoun “themselves” and a reciprocal pronoun “each other” refer to other nouns respectively. This creates either a reflexive relation or a reciprocal relation. A reflexive relation is one which holds between an entity and itself, such as “is identical in appearance to,” “has the same name as,” and so on (Cruse: 2006 151). Thus, the reflexive pronoun “themselves” and the reciprocal pronoun “each other” refer back to a co-referential noun or pronoun, as illustrated below.

6. The children amused themselves.

7. They are seeing a lot of each other.
These examples reveal that “each other” and “themselves” are linguistic items which take their interpretation from something else referred to in the same sentence or discourse. In the sentences “The children injured themselves” and “John and Mike are seeing a lot of each other,” the items “themselves” and “each other,” in their most obvious interpretations, mean “children” for the former and “John and Mike” for the latter. We say here that the NP “themselves” is an anaphoric pronoun and that the NP “children” is the antecedent of “themselves.” The relationship between these two items is one of binding, and “themselves” is bound to “children.” In the same vein, the NP “each other” is an anaphoric pronoun and the NP “John and Mike” is the antecedent of “each other.” In this regard, anaphoric reference involves “pointing back” to the antecedent, where the antecedent is often the most fully realized lexical item.

It is healthy to point out here that the reflexive NP “themselves,” as an anaphoric expression, agrees with its antecedent in number and person and both the antecedent NP and the anaphoric NP “themselves” point to the same entity as exemplified below.

8. The thieves reported themselves to the Police Station.

In this example, the reflexive NP “themselves” is an anaphoric expression because it points back to the determiner NP “thieves.” The latter NP agrees with its antecedent NP in person and number in that both are third person and plural in number. The reflexive “themselves” and the determiner phrase “thieves” denote the same entity. This is known in the literature as “co-reference.”

In the like manner, the reciprocal pronoun “each other” is a lexical item which refers to an exchange or mutual interaction between two people. For instance, the sentence “X and Y smiled at each other” implies that X smiled at Y and that Y smiled at X. In this regard, the antecedent NP must denote a set of two.

9. Suzy and Mabel hate each other.

In this sentence, the reciprocal NP “each other” is a dependent NP which relies on the independent NP “Suzy” and “Mabel” for its interpretation. This dependency relation of the reciprocal NP “each other” on the determiner NP “Suzy” and “Mabel” is known as binding.
Theoretical Frame

The theoretical framework adopted in this study is the Minimalist Theory of Chomsky (1995) which proposes the conditions under which different types of nominal establish reference. “Condition A” of the theory holds that “If a is an anaphora, interpret it as co-referential with a c-commanding phrase in D.” This Condition relies on three tenets: co-reference, c-command and syntactic domain.

Co-reference is when a reference expression and the referent denote the same entity as exemplified below.

10. The players blame themselves for the defeat.

In this sentence, the independent NP “players” and the dependent NP “themselves” point to the same entity (i.e. the players). Since potential binding relations cannot be read off from the expressions involved, they must be annotated in the linguistic representations. Therefore, Chomsky (1980, 1981) and much of the subsequent literature use a system of indexing. Each argument is assigned a certain integer as its index. If two arguments are assigned the same integer, they are co-indexed. In practice, one uses subscripts such as i, j, k, etc. as variable indices. If a and b are co-indexed, this is indicated by an identical subscript. Thus, an expression (a, ..., b) a and b are co-indexed as the following examples illustrate.

11. The teacher made [the students talk about themselves].
12. The Reverend Pastor told [Paul and Chantal to love each other].

In (11), the bracketed clause is the relevant local domain (D). The NP “the students” is a c-commanding NP. The NP “themselves” belongs to subgroup of words known as anaphor. As such, it is co-referential with the c-commanding NP “the students” in the local domain because the two NPs refer to the same entity, “the students.” In (12), the binding domain is the bracketed clause. Each other is an anaphor and it points back to the NP “Paul and Chantal” for its interpretation. Thus, the NPs “each other” and “Paul” and “Chantal” refer to the same entity, “Paul and Chantal.”

C-command holds that “a node A c-commands a node B if and only if A is higher up in the tree than B and if you can trace a line from A to B going only downward” (Haegeman: 1991 75). This idea is feasibly illustrated by the diagram below.
D c-command in this diagram shows that the first branching node above D is C. So by the definition above, any other node dominated by C will be c-commanded by D. Now since C dominates E, F and G (but not A and B), it follows that D c-commands E, F and G. This explanation of c-command is made feasible by (13) in a tree diagram.

13. The villagers enjoyed themselves.

In (13) the local domain of “themselves” is the minimal IP containing *themselves* and the antecedent “the villagers.” Every node that dominates
“the villagers” also dominates “themselves,” yet neither “themselves” nor “the villagers” dominates the other. Therefore, the independent NP “the villagers” c-commands the dependent NP “themselves.” The notion of c-command is important in the interpretation of the NPs “themselves” and “each other” because there are structural conditions which determine whether a given NP can or cannot be interpreted as an antecedent of the said anaphoric expressions. The reflexive NP “themselves” and the reciprocal NP “each other” must have an appropriate c-command antecedent as the following examples illustrate.

14. a. The villagers might disgrace themselves.
   b. *The villagers’ behaviour might disgrace themselves.
15. a. The two warriors will shoot the arrows at each other.
   b. *The five warriors will shoot the arrows at each other.

In (14a), the reflexive “themselves” has the NP “The villagers” as its antecedent whereas in (14b) the NP “The villagers” does not bind the reflexive NP “themselves.” The NP “The villagers” serves as the antecedent of “themselves” in (14a) but not in (14b) because the NP “The villagers” c-commands the NP “themselves” in (14a) but not in (14b). This is evidenced by the fact that the reflexive “themselves” requires an antecedent denoting more than one entity; and “The villagers’ behaviour” is clearly a single entity. In (15a), the antecedent NP “two warriors” c-commands the reciprocal NP “each other” by virtue of the fact that the antecedent NP denotes only two people, whereas in (15b) the antecedent NP “the five warriors” does not c-command the reciprocal NP “each other” because it denotes more than two entities.

As can be inferred above, c-command plays an important role in the proper description of syntactic and semantic phenomenon like “themselves” and “each other” binding respectively. The reflexive “themselves” in (14a) refers back to the NP “villagers,” and the reciprocal “each other” in (15a) refers back to the NP “two warriors.” The said reflexive and reciprocal cannot refer to some other group of people in this context. Thus, they have semantic properties in common. On the other hand, the said reflexive and reciprocal also have syntactic properties in common. They function as NPs and hence can occupy typical NP positions.
DATA AND METHODOLOGY

The data for this study consist of the responses that the respondents provided to the gap test task (GTT) which was structured to meet the exigen-
cies of the binding of the reflexive NP “themselves” and the reciprocal NP “each other” respectively. The test had twenty sentences to be completed by
the respondents by filling in the blank, in each of the sentences, with an ap-
propriate reflexive or reciprocal pronoun. This test, to elicit respondents’ pro-
cessing of the NPs “themselves” and “each other” respectively, was to find
out if respondents know that the said anaphoric expressions and their an-
tecedents must co-refer in terms of phi-features of number and person (syn-
tactic paradigm) as well as in terms of meaning (semantic paradigm). The
following samples were used in the collection of data.

16. The Pastor told Paul and Chantal to respect and love ___________________.
17. It seemed as though Deborah and Jacob had known _______ for a long time.
18. Suzanne and Catherine asked ____________ where they had gone wrong.
19. Did Paul and Catherine enjoy _________________ at the party?
20. George and Jonathan understand _______________ well.

The respondents are made up of one hundred and fifty (150) under-
graduate students of the English Department of the University of Yaounde I. These respondents come to the English language classroom with knowledge
of at least two other languages (e.g. Pidgin English and Mother Tongue). In
this wise what is written in this setting no doubt exhibits features that do not
meet the expectations of a native speaker. For the analysis of the data col-
lected, a scoring scheme was used wherein any response that was correct
got a point and any other response was null. Feature specifications were
then identified and interpreted on the basis of the binding principles postu-

TEST RESULTS

The English language allows the binding of the reciprocal “each other”
and the reflexive “themselves” to the local antecedent. The said reciprocal
pronoun and the antecedent must have a bilateral relationship. In this wise,
the antecedent must denote a set of two entities. In the same vein, the reflex-
ive “themselves” and the antecedent NP must agree with the phi-features of
number and person. The table below presents the respondents’ performance
in the interpretation of the reciprocal *each other* and the reflexive *themselves*.

Table 1: Processing of the NPs *each other* and *themselves*

<table>
<thead>
<tr>
<th>NP</th>
<th>Parameter Setting</th>
<th>Other Interpretations</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>each other</td>
<td>552 (36.80%)</td>
<td>948 (63.20%)</td>
<td>1,500</td>
</tr>
<tr>
<td>themselves</td>
<td>1,050 (70%)</td>
<td>450 (30%)</td>
<td>1,500</td>
</tr>
<tr>
<td>Total</td>
<td>1,602 (53.40%)</td>
<td>1,398 (46.60%)</td>
<td>3,000</td>
</tr>
</tbody>
</table>

The results reveal that respondents bound the reciprocal NP “each other” locally, respecting the English language parameter settings for the interpretation of the said reciprocal, in 552 (36.80%) instances as against 948 (63.20%) other interpretations. In the binding of the reflexive NP “themselves,” the respondents produced 1,050 (70%) instances, as against 450 (30%) instances, wherein they respected the English language parameter settings as stipulated by binding “Condition A” of the Minimalist Theory. When the respondents’ performance was tallied, we realized that they produced 1,602 (53.40%) instances, as against 1,398 (46.60%) instances, in which they respected the English language parameter settings. The mean percentage graph below presents these results feasibly.

![Fig 1: The mean percentage graph of the respondents’ performance](image)
As can be inferred on the mean percentage graph above, the respondents performed better in the interpretation of the reflexive NP “themselves” (70%) than the reciprocal NP “each other” (36.80%). This gives a difference of (33.20%) more interpretation in favour of the reflexive NP “themselves.” The analysis that follows is focused on the respondents’ performance in the processing of the reflexive NP “themselves” and the reciprocal NP “each other” respectively.

Ten sentences were used to elicit responses from the respondents on the interpretation of the reflexive NP “themselves.” Since 150 respondents took part in the production test, a total number of tokens produced by them stands at 1,500. The statistics on the table below reveal their performance. It shows the number of instances in which each of the identified NP occurred in the responses provided by the respondents in the data, as well as the percentage score in each case.

Table 2: Processing of the NP themselves

<table>
<thead>
<tr>
<th>NP Identified</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>themselves</td>
<td>1,050 (70%)</td>
</tr>
<tr>
<td>themselfs</td>
<td>243 (16.20%)</td>
</tr>
<tr>
<td>theirselves</td>
<td>126 (08.40%)</td>
</tr>
<tr>
<td>theirselfs</td>
<td>81 (05.40%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,500 (100%)</td>
</tr>
</tbody>
</table>

As the table above reveals, the respondents identified four NP types in the processing of the reflexive NP “themselves.” They produced 1,050 (70%) instances in which they identified the NP “themselves” as the dependent NP, 243 (16.20%) instances in which they produced the NP “themselves” as the dependent NP, 126 (08.40%) and 81 (05.40%) instances in which they identified the NP “theirselves” and “theirselfs” respectively. The pie chart below explicitly captures this performance in terms of percentage score.
Each other and themselves...

Fig. 2: A pie chart of the respondents’ performance in processing the NP *themselves*

This chart shows that the respondents scored 70% in setting the parameters of the “Condition A” of the Minimalist Theory by appropriately identifying the reflexive NP “themselves” as the dependent NP in the processing of sentences eliciting the NP “themselves.” However, they have also scored 30% in coming up with other NPs (“themselfs” (16.20%), “theirselves” (08.40%), and “theirselfs” (05.40%)) as the dependent NPs that are co-referential to the antecedent NPs in the same context.

In the processing of the reciprocal NP “each other,” ten sentences were used to elicit responses from the respondents. As such, the respondents produced 1,500 instances wherein they were supposed to identify *each other* as the dependent NP which is co-referential with antecedent. The table below summarises the respondents’ performance in the interpretation of the NP *each other*.

<table>
<thead>
<tr>
<th>NP Identified</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>each other</td>
<td>552 (36.80%)</td>
</tr>
<tr>
<td>themselves</td>
<td>747 (49.80%)</td>
</tr>
<tr>
<td>themselfs</td>
<td>57  (3.80%)</td>
</tr>
<tr>
<td>theirselves</td>
<td>66  (4.40%)</td>
</tr>
<tr>
<td>theirselfs</td>
<td>45  (3%)</td>
</tr>
</tbody>
</table>
The table aboveportrays that the respondents produced 552 (36.80%) instances in which they identified the reciprocal NP each other as the dependent NP, in the processing of sentences that elicited each other as the anaphoric item. They also identified the following NPs as anaphoric items in the same context: themselves 747 (49.80%) instances, themselves 57 (3.80%) instances, theirselves 66 (4.40%) instances, theirselves 45 (3%) instances, and one another 33 (2.20%) instances. The mean percentage graph below feasibly presents the respondents' performance in terms of percentage score.

Fig 3: The mean percentage graph of respondents’ performance in processing each other

This graph shows that the respondents scored 36.80% in identifying “each other” as the conferential NP in the processing of sentences which required the reciprocal NP “each other” as the dependent NP. This portrays that they scored 63.20% in identifying other NPs in the same context: “themselves” 49.80%, “themselves” 03.80%, “themselves” 04.40%, “theirselfs” 03%, and “one another” 02.20%.
DISCUSSION OF FINDINGS

According to the results of this study, respondents adopt varied feature specifications in their processing of the reciprocal NP “each other” and the reflexive pronoun NP “themselves.” In the processing of “themselves,” the respondents adopt both the English language feature specifications that enabled them to respect the syntactic and semantic features in the binding this reflexive NP locally, and non-English feature specifications that enabled them to give other interpretations. For instance, responses such as the ones presented below could be found in the data.

21. The Pastor told Paul and Chantal to respect and love themselves.
22. John and Paul understand theirselves.
23. The two soldiers had camouflaged theirselves so effectively that the enemy did not notice them approaching.

The responses reveal that these respondents do not use structural dependency in their processing of co-reference. As such, their interpretations show signs of “incomprehensible grammars” as they do not tie with the parameter settings of the Minimalist Theory stipulated for the English language. The results further indicate that respondents interpret the reciprocal NP “each other” like the reflexive NP “themselves.” This is evidenced by some of the responses they provided in the data as illustrated below.

24. The Pastor told Paul and Chantal to respect and love themselves.
25. It seemed as though Deborah and Jacob had known theirselves for a long time.
26. George and Jonathan understand theirselves well.
27. John and Paul embraced theirselves as a sign of reconciliation.
28. Akame and Ndongo don’t know theirselves.
29. Mabel and Deborah greeted theirselves when they met at the party.
30. The Pastor told Paul and Chantal to respect and love one another.

It would have been perfectly grammatical to have such sentences which express mutual relationship involving only two persons, with the reciprocal “each other.” Failure to respect this parameter setting is problematic as the reference NP and the referent NP do not co-index semantically. What the ad-
dressor wanted the addressee to understand is not what is expressed. Thus, the sentences have different denotations from the ones intended by the respondents. These feature specifications insidiously bite into the processing of these anaphoric expressions by L2 learners of English in Cameroon. Furthermore, the meaning of these expressions is comprehendible only at the pragmatic level since the respondents do not adopt the nominal feature of co-indexation in their processing of co-reference. However, their interpretations have contextual variables which can be attributed to a direct translation from the respondents L1 and Cameroon Pidgin English as the example below explicitly illustrates.

31. Cynthia and Joseph dem love demselves.  
   ‘Cynthia and Joseph INFL love themselves’.  
   ‘Cynthia and Joseph love each other’.

As seen above, the results of this study are problematic as respondents do not adopt the parameter settings stipulated for the English language by “Condition A” of the Minimalist Theory. Hence their interpretations show that they walk or tread a linguistic tightrope wherein they have to deal with a difficult situation, especially one involving making a decision between two opposing noun phrases (“each other” and “themselves”). Furthermore, responses such as the ones presented below could still be found in the data.

32. John and Paul embraced one another as a sign of reconciliation.  
33. Akame and Ndongo don’t know one another.  
34. It seemed as though Deborah and Jacob had known one another for a long time.

In this regard, it is healthy to point out here that learning of a particular language is the mastering of its logical system and the L2 learner of a language is usually out of focus because he is employing a rhetoric and a sequence of thought which violates the expectation of a native speaker.

**Conclusion**

This study has explored the analysis and processing of the reciprocal NP “each other” and the reflexive NP “themselves” by L2 learners of English in Cameroon. This has been carried out within “Condition A” of the Minimalist Theory postulated by Chomsky (1995). The interpretation of these pronouns
were determined syntactically (at some point when a sentence is being constructed) and semantically (when the completed sentence is assigned a semantic interpretation (meaning)). To this end, the interaction of syntax and semantics in reflexive and reciprocal interpretation means that the interpretation of the reflexive NP “themselves” and the reciprocal NP “each other” can be fixed either at the sentence building stage, or the meaning assignment stage. In order to investigate this, a gap test task (GTT) was designed. The results indicate that the respondents use both English and non-English feature specifications. This makes their analysis and interpretations look “English-like” but do not tie with the parameter settings stipulated for the English language by “Condition A” of the Minimalist Theory postulated by Chomsky (1995). In a good number of instances, respondents did not adopt the English nominal feature of structural dependency in their processing of co-reference and most of their interpretations were not fixed either at the sentence building stage or at the meaning assignment stage. The failure to adopt purely English feature specifications is not accidental as it may be identified to the influence of other languages surrounding the acquisition of English in this setting. This view is entertained by Lado (1957) who states that “individuals tend to transfer the forms and meanings of their native language and culture to the foreign language and culture when attempting to grasp and understand the language as practised by the natives”. Moreover, Biloa (1999 148) adds, that in such situations: “soit la structure de ce parler obéit aux règles de la grammaire, soit elle déforme celles-ci.” In this wise, the interpretation of the reciprocal dependent NP “each other” and the reflexive dependent NP “themselves” by these L2 learners is more appealing to a non-native speaker than to a native speaker.

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