



The Role of Syntax and Semantics in the Grammars of English Learners

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Abstract

The extent to which syntactic models, semantic models or combined models incorporating both syntactic and semantic elements explain the language used by learners has been much researched. This study assumes that there is an innate language faculty which plays a fundamental part in a native speaker's acquisition of their first language. In particular it will focus on the use of reflexives, a highly abstruse area which is not part of formal English teaching. However, posited syntactic models of how reflexives are used and interpreted do not seem to fully explain native speaker intuitions. This discontinuity between the syntactic models and the results from data obtained from informants has also become apparent in the research into Second Language Acquisition (SLA). Thus, this research will look at a model which combines the syntactic theory of movement at Logical Form with the semantic theory that pronouns and reflexives can be described in terms of logophoricity. Testing will then be undertaken of native speakers of English as well as native speakers of Mandarin Chinese to see if this model can account for their intuitions about English reflexive pronoun

Key words: Syntax; Semantics; Logophoricity; Logical form; Head movement; Language acquisition

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INTRODUCTION

As Chomsky (1976) has argued, "Every 'theory of learning' even worth considering incorporates an innateness hypothesis" (p.13). Because the rules that govern the behaviour of reflexives are subtle and abstract it would seem that a viable theory would need to account for the "poverty-of-the-stimulus" argument that a child's knowledge of their L1 exceeds what can be accounted for by the linguistic input that has been received. Whether the same poverty-of-the-stimulus argument also applies with L2 acquisition has been frequently debated in the literature. However, evidence for an innate language faculty still being available to non-native speaking learners would be provided by such learners showing knowledge of the features of the language that the linguistic input would not account for. Therefore, showing that such knowledge did not come from explicit explanation and correction, or from learning principles, that are not linguistic-specific, or from the L1.

Sharwood Smith (1989) noted for second language learners there are, "subtle and complex features of human language that cannot be provided by the usual kind of input nor even by the usual type of correction and explanation." (p.14). If the knowledge of such features of the L2 is not instantiated in the L1 it would not be credible to claim learners' L1 knowledge as a potential source. As Hawkins (2001) noted if learners have not received sufficient L2 input they will rely on syntax from their L1 in producing sentences. Therefore, if they produce sentences incorporating features of L2 syntax, which cannot be accounted for from the input, this would be strong evidence for continued availability of innate language faculties. Epstein, Flynn and Martohardjono (1998) posit the Strong Continuity Hypothesis, which claims that L2 learners have access to all the features of the innate language faculty.

1. THEORETICAL OVERVIEW

Principle A of Binding theory (Chomsky, 1981) holds that an anaphor is bound in its governing category. Within a sentence there are three logical possibilities concerning the co-reference of one NP with another NP, i.e. (i) obligatory, (ii) optional, or (iii) proscribed. These three possibilities are illustrated in the following two sentences.

Ann_i knows Betty_j likes herself_{i/j}
Ann_i knows Betty_j likes her_{i/*j}

Thus, we can see that the reflexive in English is bound, whereas pronominals are consistent with Principle B, in that it is free in its governing category.

However, this pattern did not seem to be repeated in some other languages where long-distance binding of reflexives was found to be possible. This is shown in the following Chinese sentence.

Ann_i renwei Betty_k xihuan ziji_{i/j/k}
Ann know Betty like self
'Ann knows Betty likes herself.'

Batistella (1989) posited that long-distance reflexives involve head movement from Infl to Infl at Logical Form. Cole and his associates (Cole, Hermon, & Sung, 1990; Cole & Sung, 1994; Cole & Wang, 1996) developed the theory of Logical Form head-to-head movement to explain long-distance binding of monomorphemic reflexives. Their argument was that such reflexives can move into higher positions at Logical Form. In this analysis X⁰ reflexives can move into a higher X⁰ position. Therefore, long distance reflexives can be viewed as “only seemingly LD: In all analysis in this group the relationship between the reflexive and its antecedent is covertly local in nature” (Cole & Sung, 1994, p.356).

However, this model only accounts for long distance binding of monomorphemic reflexives. Other researchers have argued that polymorphemic reflexives, such as the Mandarin reflexive, *taziji* can also be bound long distance. Thus he claimed that, “any correlation between the type of reflexive and the locality of binding was at best a tendency cross-linguistically” (Huang, 2000, p.117). Therefore, to ensure a theory that would account for all the data it would seem that a purely syntactic model would be inadequate.

Sells (1987) argued that the behaviour of reflexives is logophoric, in that it can be explained in terms of whether a reflexive co-refers to a protagonist in the sentence or the speaker and report on his or her speech, thought, state of consciousness or point of view. Sells argues that an acceptable antecedent for a long-distance reflexive vary between language. For example, in Icelandic antecedents must represent the mental state of the described

individual, whereas in Japanese the requirement is based on perspective

Several researchers have examined whether Mandarin reflexives are logophoric. Huang and Liu (2001) noted that there was a contrast in the acceptability of NPs as potential antecedents for a reflexive in a sentence depended upon the mental state or attitude of protagonists in that sentence as well as who was the source of an idea or a speech act. This interpretation of Mandarin reflexives as being logophoric was supported by Liu's (2012) study of long-distance Mandarin reflexives and their antecedents as logophoric. Chou (2012) also claimed that embedded subjects with protagonists who had a different point of view blocked long-distance binding which otherwise would have been considered acceptable by native speakers. Therefore, as Reuland (2001, p.352) claims, “there is a separate semantic component among our cognitive faculties.”

Therefore, a possible model involves both syntactic and semantic modular components. Cole, Hermon and Lee (2001) argued that Mandarin reflexives had to satisfy both logophoric and syntactic requirements. If either the syntactic or logophoric components were not satisfied then a candidate NP would be either rejected as an antecedent, or at least regarded as less felicitous. This model would be consistent with the head-movement account. X^{max} reflexives would be locally bound and X⁰ reflexives can move from I to I into a higher clause. Thus, the syntactic relation between a reflexive and its antecedent is effectively local when it is syntactically bound. A reflexive that cannot move into a local relation with an antecedent is consequently ungrammatical. However, if local NPs cannot be interpreted it is then possible for long-distance binding to occur through a logophoric interpretation

Thus, if a sentence is interpreted and the syntax and semantics both indicate the same NP then interpretation is straightforward. However, if logophoric factors indicate an NP antecedent which is not syntactically valid then it can be argued that the felicity of that interpretation depends upon the prominence or strength of the logophoric factor present. Matthews (2009) argues that these factors are hierarchical with respect to English, based on the semantic prominence of a potential antecedent NP. As the semantic prominence of a syntactically non-valid NP increases then native speakers are increasingly likely to accept the felicity of those NPs as acceptable antecedents.

The semantic prominence of a long-distance NP is determined by the structure of the sentence in which it appears. First, if the sentence contains an embedded sentence with two arguments of the matrix verb the local sentential subject which is the centre of perspective of that (embedded) sentence the felicity of the long-distance NP is reduced. Second, if the sentence does not contain an embedded sentence, but a non-tensed subordinate clause felicity would be reduced less. Finally, if the sentence is

uni-clausal with a possessor contained within an NP, the possessor contained within the NP is not a direct argument of a verb. Therefore, the verb does not have two arguments acting as candidate antecedents for the reflexive and this would have the least effect on the felicity of acceptability of the long-distance NP as the antecedent.

2. METHODOLOGY

The test was run on two groups. Group 1 consisted of ten native speakers of English. The subjects' ages ranged from 23 to 36, with a mean age of 27.9. They had all graduated from university, with one subject possessing a master's degree. All subjects were linguistically naïve. Group 2 consisted of 19 undergraduate and one postgraduate student at a University in Taiwan. The ages ranged from 21 to 29, with a mean age of 22.0. All the informants in Group 2 were currently studying English as English majors at university and were of high intermediate or advanced level. None of this group had lived or been educated in an English-speaking environment.

The test included three different sentence types.

Type 1: Multi-clausal sentences with the reflexive in a subordinate tensed clause

Ann thought Betty photographed herself.

The local NP, *Betty* is the syntactically acceptable antecedent. However, the long-distance NP, *Ann* would not be syntactically valid.

Type 2: Bi-clausal sentences with a non-tensed subordinate clause containing a reflexive

Ann wanted Betty to photograph herself.

The local NP, *Betty* is an acceptable antecedent. If an antecedent outside of the clause is accepted then long distance binding is indicated.

Type 3: Uniclausal sentences with a reflexive inside a "picture NP" with a possessor

Betty liked Ann's photo of herself.

In this sentence the reflexive is bound to the possessor in the "picture NP", i.e. *Ann*.

The test was comprised of 12 sentences which were paired with 12 photographs. The informants were asked to judge whether each sentence was "true" or "false". The vocabulary used on the test was simple, clear and unambiguous. A total of 3 proper names were used, Ann, Betty and Carl and photographs of these two people were shown to the informants so they could be recognized. In addition to the pronoun, you were used. Ann, Betty, Carl and the tester were shown in the test photographs. All photographs feature 2 people interacting in ways which made it deictically clear who the reflexive was referring to.

A pre-test training session was given. Informants were shown a picture projected onto a screen with an accompanying sentence beneath the image. They were then asked to record whether the sentences were true or

false. In this session proper nouns and pronouns were used to ensure that the informants were familiar with the test methodology and would respond appropriately to the visual cues presented in the photographs. In this session no reflexives were employed. In the test, each informant then recorded his or her answer of either "true" or "false" on the answer sheet. The image was then replaced with the next image in the test. Therefore, informants did not have the opportunity to refer to previous test stimuli when they were completing the test.

3. RESULTS

In all three sentence types, there was no significant difference between the groups. The local binding acceptance rate was 96.7% for Group 1 compared with 93.1% with Group 2. This would correspond to informants accepting the normal syntactic (and semantic) interpretation of what is an acceptable antecedent in English. However, as would be expected syntactically, sentences where the contexts provided by the visual stimuli indicate that the reflexive is bound to a long-distance antecedent were less acceptable than local ones. However, the acceptance rate varied based upon whether the sentence was Type 1, Type 2 or Type 3, and whether the potential antecedent NP was 2nd person or 3rd person.

For Type 1 sentences the acceptance rates were Group 1, 6.7% and Group 2, 23.3%. Type 2 sentences, acceptance of long-distance antecedents comprised 13.3% of responses for Group 1 and 31.1% for Group 2. Group 1 informants accepted 36.7% of Type 3 sentences, compared with 40.4% of Group 2. When we examine long distance candidate antecedents we find significant differences ($p < 0.05$) as to whether they are accepted depending upon whether they are 2nd person or 3rd person. Thus, if the indicated long-distance NP is 2nd person Group 1 informants judge it acceptable in 26.7% of responses. This fell to 10.0% for 3rd person NPs. This result was not inconsistent with Group 2 results, where there was a 23.3% acceptance response rate for 2nd person NPs and a 36.2% acceptance response rate for 3rd person NPs.

The results indicate that both native and non-native speakers readily interpret English reflexives as locally bound anaphors. Thus, the data support the idea that the behaviour of reflexives is syntactically constrained. However, there is evidence from the data that long-distance antecedents are not totally precluded. However, there was little evidence that the long-distance binding for English reflexives is generally considered valid. This is particularly apparent from the native speaking informants in Type 1 and Type 2 sentences. However, albeit to a lesser extent, this was also shown by non-native speakers. It would seem that it is unlikely that

this could be explained by general learning mechanisms due to its abstract nature. The responses of informants to Type 3 sentences which contain a reflexive in a NP with a possessor shows that informants are far more likely to accept such sentences, which would be hard to explain in a purely syntactic model. Therefore, the data supports the contention that binding is also influenced by semantic factors.

CONCLUSION

The data from this study would seem to indicate that purely syntactic models of binding are inadequate in accounting for all the linguistic behaviour. The head movement account does seem to offer a good fit with much of the data, but it is apparent that antecedent NPs are sometimes judged acceptable, even though they would not be licit with this model. Hence, semantic interpretation of reflexives seems to allow for a licensing of some long-distance NPs as acceptable antecedent if certain logophoric criteria are satisfied. Thus, if an NP is the deitic or perspective centre of a sentence, then it is semantically more “prominent” and is, therefore, likely to be viewed more felicitously as the antecedent for the reflexive. Therefore, the syntactic and semantic components in the binding model could be both employed simultaneously. If these two components are both lead to the same interpretation then the interpretation of that antecedent is unproblematic.

However, if a syntactically illicit antecedent is indicated then its acceptability seems to be variable based on a number of factors. This division of binding into two distinct areas would be consistent with the theory that a reflexive is constrained by the head-movement account. Thus, the syntactic relation between a reflexive and its antecedent is effectively local when it is syntactically bound. However, if a reflexive cannot move into a local relation with an antecedent then the sentence is either ungrammatical and cannot be interpreted or it is interpreted logophorically.

Though the results from this test offer evidence for the interaction of syntax and semantics in binding more work is needed. This study was limited by a relatively small sample size and more data would allow further testing of these ideas. Furthermore, it would be beneficial for analysis and testing to be extended to other languages to see if semantic factors operate in those languages in similar ways.

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