The Comprehension of Focussed and Non-Focussed Pronouns

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Gundel (1980) has shown that focussed pronouns like the underlined form in (1) and non-focussed pronouns like the underlined form in (2) have different communicative functions.

(1) Q. Who did they call?
A. Pat said they called HER.

(2) Q. Has Pat been called yet?
A. Pat said they called her TWICE.

The purpose of this paper is to investigate the possibility that these different functions are associated with different psychological processes underlying the comprehension of pronouns.

We will begin with a brief description of the linguistic differences between focussed and non-focussed pronouns. The focussed pronoun in (1) is a referring expression. Its function, like that of other referring expressions, is to pick out and call the addressee's attention to, some entity in the discourse context. Thesediffer from full NP's only in that the entity is assumed to be identifiable on the basis of its presence in the immediate linguistic or non-linguistic context. As with full NP's, focus on a pronoun is obligatory when the pronoun is part of the comment of a sentence (i.e. new information being asserted, questioned, etc. about a topic), as in (1). Pronouns which are topics can also be focussed, e.g. if there is a topic shift or contrast as in (3)-(5).

(3) I asked Bruce about it. HE said he didn't CARE.

(4) THEM, I don't LIKE.

(5) Q. Are Bill and Mary still here?
A. HE went HOME, but SHE's in the other ROOM.

Non-focussed pronouns like the underlined form in (2) have no independent referring function. They are always controlled by already established discourse or sentence topics. From a communicative point of view, they are almost completely redundant. Their function is thus primarily syntactic. This distinction between focussed and non-focussed pronouns is independent of whether the coreferential full NP is in the same sentence or in a previous sentence in the discourse. Furthermore, as seen in (6) and (7), both focussed and non-focussed pronouns can be non-linguistically evoked.(Halliday and Hasan (1976) call this exophoric.)

(6) (A sees B reading an application and says)
Do you think we should ADMIT her? (non-focussed)

(7) (A hands an application to B and says)
Do you think we should admit HER?

Although focussed and non-focussed pronouns have different lexical, syntactic and semantic properties, linguistic theories of anaphora have not generally distinguished the two. This is no doubt due partly to the fact that most theories of pronominal anaphora are based on English, which has identical forms for focussed and non-focussed pronouns and where the latter differ from the former only in that they are unstressed and have corresponding phonological reduction in casual speech. The one exception is the 3rd person neuter singular it, which is always non-focussed.(see Linde (1979) .For example

(8) Q. Which do you want?
A.*I'll take IT.

(9)* IT, I don't LIKE.

However, in many languages non-focussed pronouns differ lexically from focussed ones. Some languages (e.g. Irish, Spanish and Polish) have long form focussed pronouns and corresponding short form , usually clitic, non-focussed pronouns. Compare the Polish examples in (10) and (11).

(10) Jan je tutaj. Ja go widziałam. (non-focussed)
is here I him saw
"Jan is here. I saw him."

(11) Q. Kogo widziałaś? "Who did you see?"
who saw

A. Ja JEGO widziałam. "I saw HIM" (focussed)
I him saw

In most languages, the two sets of pronouns (commonly referred to as non-emphatic and emphatic respectively) are related historically, the non-focussed pronoun being a phonologically reduced version of the focussed one. There are languages however which have totally unrelated forms for focussed and non-focussed pronouns. For example, in Fijian the 3rd person singular non-focussed form is e and the corresponding focussed form is koya. Finally, there are languages which allow, and in some cases require, so-called zero anaphora (i.e. no form at all) in those cases where English would have a non-focussed pronoun. The following Mandarin example from Li and Thompson (1979) is an illustration of this.

(12) qǔ-le shuǐ lái "(He) brought the water."
bring-aspect water

Focussed pronouns, however, cannot be omitted in these languages.

While the existence of zero NP-anaphora in languages like Spanish, for example, has often been linked to the fact that such languages have subject agreement marking on the verb, it is important to point out that such agreement is neither a necessary nor a sufficient condition for zero NP-anaphora. As can be seen from the example in (12), Mandarin allows zero NP-anaphora even though it has no agreement marking on the verb.

In addition to the lexical differences discussed above, focussed pronouns differ from non-focussed pronouns in their syntactic properties and in conditions on coreference with other NP's . In English, non-focussed pronouns are excluded from certain syntactic environments. For example, a direct object must precede an indirect object if the direct object is a non-focussed pronoun , as illustrated in (13) and (14).

(13) Q. Did you give the books to Tom?.
A. No. I gave MARY the books
*them

(14) Q. Which books did you give to Mary?
A. I gave Mary THEM.

As (13) shows, it is not non-focussed NP's in general, but only non-focussed pronouns, which are excluded from final position in such sentences.

On the other hand, some syntactic environments require non-focussed pronouns, as illustrated in (15) and (16).

(15) My pocket has a hole in it
*THAT

(16) The old dog still has a lot of life left in him
*HIM

Focussed pronouns also differ from non-focussed pronouns in conditions on coreference. For example, as noted in Akmajian and Jackendoff (1970) only non-focussed pronouns can be coreferential with a following full NP in the same sentence. Thus, John and he can be coreferential in (17) but not in (18).

(17) After he woke up, John went to TOWN.

(18) After HE woke up, John went to town.

Coreference assignments also differ depending on whether the pronoun is focussed or non-focussed in examples like (19) and (20).

(19) Mary called Alice and then SARAH called her.

(20) Mary called Alice and then Sarah called HER.

Since there are clear linguistic and functional differences between focussed and non-focussed pronouns, we would now like to address the issue of whether these differences are reflected in differences in processing.

We suggested above that focussed pronouns can refer to any entity in the immediate discourse context. Non-focussed pronouns, on the other hand, can only be coreferential with a subset of these, namely established topics. If this is true, one might expect that the processing of non-focussed pronouns would be less complex since the set of available entities is more restricted.

Theories of psychological processes underlying pronoun comprehension have generally not distinguished between focussed and non-focussed pronouns. Assumptions about pronoun processing can be classified into two main categories. The first, which we will refer to as the Reference Search Hypothesis is stated explicitly in Clark and Clark (1977, p. 78): "on finding a definite noun phrase, search memory for the entity it was meant to refer to and replace the interpretation of the noun phrase by a reference to the entity directly." A similar statement is found in Clark and Sengul (1979): "When listeners encounter 'the woman' or 'she' they are assumed to treat this as given information for which they must find a referent. They then search memory for the unique entity to which 'the woman' or 'she' was intended to refer."(Note that under this hypothesis pronoun comprehension is not assumed to be essentially different from comprehension of full NP's.)Caramazza and Gupta (1979) also seem to implicitly accept the Reference Search Hypothesis when, in discussing some of their stimulus sentences, they say:"the sentence materials used in Experiment I could be expected to generate this chain of events because the preposed subordinate clauses do not contain enough information to guide the subject in the search for appropriate referents to the anaphoric pronouns (emphasis added)

The second major kind of pronoun processing theory may be referred to as the Topic-Stability hypothesis. A pronoun, in this view, serves not as a signal to the listerner to initiate a memory search, but rather as a signal to assign coreference relations between the pronoun and the discourse topic. A statement consistent with this view, though not specifically proposing a processing theory, can be found in Chafe (1974): "if the explanation in terms of consciousness is correct, it is misleading to speak as if the addressee needs to perform some operation of recovery for given information. The point is rather that such information is already on stage in the mind." Karmiloff-Smith (1980) takes a similar view: "anaphoric pronominalization functions as an implicit instruction for the addressee not to recompute for retrieval of an antecedent referent, but rather to treat the pronoun as the default case for the thematic subject of a span of discourse." She goes on to say that deviations from the default (topic) case will be signalled by the use of a full NP. As we have seen (e.g. example (3) above) such deviations can be signalled as well by the use of a focussed pronoun.

If the two pronoun functions discussed above are associated with differences in processing, it may be that both the Reference Search Hypothesis and the Topic-Stability Hypothesis are correct. Reference search may be used in processing focussed pronouns and topic-stability may be used in processing non-focussed pronouns. Assuming that executing a reference search is a more complex task than assignment of reference to a discourse topic, this dual process hypothesis predicts that processing focussed pronouns should be more difficult than processing non-focussed pronouns. This hypothesis would also seem to predict that no differences should be found in processing between sentences which both have non-focussed pronouns. Previous work, however, has found such differences. Caramazza and Gupta (1979), for example, found differences in reaction time to naming the NP coreferential with a non-focussed (it would have been unstressed had it been presented auditorily) pronoun depending on pragmatic and syntactic factors. According to the Topic-Stability Hypothesis, these differences should not have been found. However, the prediction made by this hypothesis depends on the fact that unstressed pronouns must refer to the discourse topic. Sentences presented in isolation, as in Carmazza and Gupta's study, may be ambiguous with respect to discourse topic. If more than one entity is eligible to serve as the discourse topic, then a reference search might be necessary even for an unstressed pronoun, although the number of entities to be examined might be smaller than for a focussed pronoun. Thus, these results do not seem to provide a serious counterexample to our proposal.

The only previous study to directly address the question of comprehension differences between focussed and non-focussed pronouns is Maratsos (1973). He found that focussed pronouns of one type (that is the role-switch type seen in (20)), were more difficult for children to comprehend than unstressed pronouns. He interprets this difference to the operation of a role stability strategy that tells the child to try to maintain the same actors in syntactic and semantic roles. Obviously this interpretation resembles the Topic-Stability hypothesis, in that in the Topic-Stability hypothesis the listener is maintaining the same entity as a discourse topic.

In the dual-process hypothesis, as well as in Maratsos's hypothesis, stress is seen as signalling change, however, the fact that some types of focussed pronouns do not signal grammatical or semantic role change (such as the example in (7)) shows that Maratsos's characterization is not quite accurate for a wider sample of focussed pronouns than the ones he used in his experiment.

In light of the results that Maratsos obtained, we expected that the processing of focussed pronouns, assumed to be of the reference search type, would be more difficult than the processing of unfocussed pronouns, assumed to be of the topic-stability type.

We conducted a pilot study to test the hypothesis that there are different kinds of processing for stressed and unstressed pronouns. In this study, 15 subjects listened to a set of 40 short discourses, 20 experimental and 20 filler. The experimental discourses occurred in two identical forms, except with a biasing context that made a focussed or non-focussed pronoun appropriate. In both forms of the discourse the referent of the pronoun was the same. For example:

(21) A. Did Bill say who would be late?
B. Yes, after I called him up, Bill said that HE would be late.

(22) A. Did Bill say whether he would be late?
B. Yes, after I called him up, Bill said that he would be late.

After listening to the sentences, the subjects answered true or false to a statement about a part of the sentence that had nothing to do with the pronominal reference. After (21) or (22), for example, the subjects might hear:

(23) True or false: Bill called me up.

On the assumption that a difficulty in pronoun processing would lead to a general degradation in performance in comprehending all parts of the sentence, we predicted that more errors would be made in the sentences with focussed pronouns in them.

We found that subjects did not made significantly more errors in either condition. We believe, however, that this result is due to the fact that the task issimply too easy. We found that subjects performed at about the 90% level of correctness for both focussed and non-focussed pronoun discourses, and most of these errors were due to two stimulus discourses that were difficult for other reasons. We also asked the subjects to judge whether they felt the following statement was easy, medium, or difficult to answer, and found no difference between focussed and non-focussed conditions in this measurement either. We did find that judgements of difficulty were not consistently related to performance. Very often subjects thought that the statement was easy to confirm when they gave the wrong answer.

A future experiment will provide a more sensitive test of this hypothesis. This experiment will auditorily present subjects with discourses containing pronouns of the types we are interested in, and measure reaction time to naming the referent of the pronoun. This would be similar to the procedure used in Caramazza and Gupta (1979), except that they used a visual presentation.

If our hypothesis is correct, then reaction time to naming the referent of a focussed pronoun should be longer than reaction time to naming the referent of a non-focussed pronoun. If there is no difference in reaction times, we would conclude that the reference search process is used for all pronoun processing. Note that the Topic-Stability hypothesis cannot be correct (at least for adults), for all pronouns, since it can lead to the wrong referent's being selected for some focussed pronouns, as illustrated in (19) and (20). On the other hand, reference search could lead to the correct referent for all pronouns.

We have suggested that pronouns can be divided into two types on the basis of their linguistic characteristics, and we have suggested that people may be able to take advantage of the severe restrictions on what the antecedent of an unstressed pronoun can be in processing. No differences were detected in a pilot study, but an additional experiment is proposed that will use a more sensitive test of processing difficulty than the one used in the first experiment.

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