Anaphora and Metarepresentation : Accessibility of Contextual Assumptions

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Abstract

   It is evident that according to the types of anaphoric expressions the accessibility of contextual assumptions enabling the identification of a referent differs. This article examines a different level of the referential accessibility of anaphoric expressions in terms of the availability of contextual assumptions. In the relevance-theoretic framework, an anaphoric expression undergoes a specific type of saturation in the sense that its referent is found in the representation of a representation the hearer accesses as the target of anaphora resolution. I conclude that the difference in the referential accessibility of anaphoric expressions and in processing effort stem from degrees of interpretive resemblance between a source representation and the representation of that representation. However, anaphoric expressions with lower accessibility to the referent provide an extra cognitive effect, being consistent with a presumption of relevance.

Key Words: Anaphoric expressions, Relevance theory, Accessibility, Metarepresentation, Interpretive resemblance

1. Introduction

   Research identifying the various types of anaphoric expressions (cf. Hankamer and Sag (1976), Murphy (1985) and Garnham (2001)) suggests they require different levels of processing effort to access contextual assumptions enabling the identification of a referent. To illustrate, comparing a verb phrase ellipsis (1) with "do it" anaphora (2), we readily assume that the latter requires more processing effort in accessing a contextual assumption to resolve anaphora.

   (1)   A: Do you think John will take charge of my son?
           B: Maybe he <u>won't</u>.
   (2)   [Will has been persuading his friend Marcus to quit singing as often as opportunities allow]
           Marcus: My accompanist left.
           Will: Well, that's brilliant. Then you don't have to <u>do it</u>.

<div align="right">(from a movie About A Boy, 2003)</div>

The elliptical expression "won't" in (1) is developed into "won't take charge of your son" by using contextual assumptions constructed on the basis of the previous discourse. On the other hand, "do it" in (2) refers to "sing", which is a referent not existent in the previous discourse. In other words, the referent of

"do it" is identified not by replacement with a linguistic antecedent but by pragmatic inferences, which will be investigated in section 3. It is not reasonable to conclude that this difference is derived from the traditional dichotomy of surface/deep anaphora because a considerable amount of literature points out that this dichotomy is not a clear-cut distinction in itself.[1]

This article is organized as follows. In section 2, I examine some suggestions provided by Relevance theory in order to investigate why anaphoric expressions require different levels of processing effort in accessing contextual assumptions to find a referent. In this attempt, appropriate answers may lie in various degrees of interpretive resemblance between a source representation and the representation of that representation. This will be closely argued in section 3 with a concrete discussion of the correlation between degrees of interpretive resemblance and the accessibility of contextual assumptions in terms of anaphora resolution. Section 4 is a brief conclusion.

2. Suggestions from Relevance Theory
2.1. Anaphora as a Specific Type of Saturation

Relevance theory deals with linguistic and non-linguistic information as an input that will be enriched in the pragmatic process. In this framework, the central systems receive input in the form of conceptual representations from the input systems of language and perception.[2] This indicates that both language and perception as ostensive stimuli take the form of conceptual representations in the decoding process. These conceptual representations are semantically incomplete in the sense that the linguistic stimuli are short of what the speaker intended to communicate with the utterance or that the perception itself does not directly reflect what the hearer pays attention to. Therefore, pragmatic inferences based on the manipulation of conceptual representations are required in the central systems in order to achieve adequate cognitive effects.

Pragmatic inferences contribute in various ways to the proposition expressed. Not only are implicatures inferentially calculated but the underdetermined linguistic meaning of the utterance is developed into what is explicitly communicated and truth valuable. The linguistic meaning encoded by the utterance is determined through, say, saturating indexicals or enrichments of the concepts encoded by lexical items. Saturation is a linguistically-mandated pragmatic process, as in (3a-c).

(3)   a. He is too young. [for what?]
        b. It's hot enough. [for what?]
        c. I like Sally's shoes. [shoes in what relation to Sally?]

Lexical items such as "too" in (3a), "enough" in (3b) and the genetive "Sally's" in (3c) contribute as signals or pointers to the supply of an implicit argument. So, examples (3a-c) would not be semantically complete until the hearer contextually supplies a constituent to fill a variable answering the bracketed questions [for what?] and [shoes in what relation to Sally?].

An anaphoric expression encodes an underdetermined meaning with clues to the supply of missing constituents. Pragmatic inferences in terms of anaphoric processes are therefore regarded as saturating anaphoric expressions. Intuitively, however, anaphoric processes seem to include a specific type of saturation. First of all, an anaphoric expression is a conventionally communicative signal encoding a linguistic

instruction for complementing the incomplete encoded meaning of an utterance in order to help identify the referent without gratuitous effort: for instance, the third-person pronoun "he" instructs the hearer to access a male human entity and "don't" instructs the hearer to access a verb phrase, due to the specification of the lexical property. Another difference is found in the way contextual assumptions are constructed. The identification of a referent for anaphoric expressions relies on contextual assumptions constructed on the basis of the previous discourse. In this process, the hearer seems to access a particular representation (as ostensive stimuli) and, then, to represent it in order to find a candidate referent, rather than directly accessing the referent. In other words, the hearer interprets the referent so that the saturation process can be optimally relevant in the context. This suggests that anaphora resolution depends on a representation of a representation as a specific process of saturation.

2.2. Non-linguistic Metarepresentation

Discussions in section 2.1. allow a metarepresentational account of anaphoric processes. Metarepresentation is regarded as the use of one representation to represent another representation (cf. Wilson (2000), Noh (2000)). Metarepresentation (i.e. representation of representation) takes the form of a higher-order representation embedding a lower-order representation. The higher-order representation is generally an utterance or a thought. The three main types of lower-order representations are public representations such as utterances, mental representations such as thoughts, and abstract representations such as sentences and propositions (cf. Wilson (2000:414)).

Theoretically, metarepresentation takes six forms: i.e. public representation of public representation, public representation of mental representation, and public representation of abstract representation; and mental representation of public representation, mental representation of mental representation, and mental representation of abstract representation. The first three forms are regarded as forms of linguistic metarepresentation, whilst the rest are regarded as forms of non-linguistic metarepresentation. The comprehension process of anaphoric expressions involves non-linguistic metarepresentation—that is, the hearer's thought about a source representation such as someone's utterance or thought, or a sensory representation—because it is a process of constructing contextual assumptions on the basis of an item of information in the previous discourse or the immediate physical environment. Thus, metarepresentation with regard to anaphoric processes includes the following three types.

(4)　　mental representation (i.e. thought) of source representation: e.g.
　　　　a.　public representation (i.e. utterance)
　　　　b.　mental representation (i.e. thought or assumption)
　　　　c.　sensory representation (i.e. physical object or event)[3]

In this model, the higher-order representation is regarded as a mental representation such as thoughts, and embedded inside it is the lower-order source representation such as utterances, unspoken thoughts or assumptions and sensory representations. Accordingly, the referent of anaphoric expressions is accessed in the hearer's mental representation of the utterance or thought attributed to the originator (i.e. the speaker whose utterance or thought as a source representation is represented by the hearer) or of a sensory representation, not directly accessed in the discourse or in a physical object or event immediately

existing.

3. Accessibility and Degrees of Interpretive Resemblance

In the process of metarepresentation, one representation is used to represent another representation by way of interpretive resemblance between two representations, either in content or in form. As Wilson (2000) claims, interpretive resemblance is thought of as "resemblance in terms of shared implications" and two representations resemble each other in a context to the extent that they share logical and contextual implications. Resemblance between two representations is a matter of degree: in other words, any two representations, the original and the interpreted, can more or less resemble each other.[4] Thus, anaphora is successfully processed on the basis of the resemblance either in form or in content between a source representation (i.e. someone's utterance or thought, or perception) and the representation of it. In this section, I claim that different levels of processing effort involved in accessing a contextual assumption enabling the identification of a referent depend on various degrees of interpretive resemblance.

When we comprehend, we follow a general comprehension procedure of selecting the most accessible interpretive hypothesis in computing cognitive effects (cf. Sperber and Wilson (1986), Carston (2002)).

(5)   Relevance-theoretic comprehension procedure: follow a path of least effort in computing cognitive effects.
(a) Consider interpretation in order of accessibility.
(b) Stop when your expectation of relevance is satisfied.

As this hypothesis predicts, a more accessible contextual assumption is one that requires less processing effort. Accessibility of a contextual assumption is defined as "the ease or difficulty with which an assumption can be retrieved (from memory) or constructed (on the basis of clues in the stimulus currently being processed)" and it is "a matter of degree".[5] As Sperber and Wilson (1995:142) claim, "…just as processing an item of information in a context involves some effort, so accessing a context involves some effort. The less accessible a context, the greater the effort involved in accessing it, and conversely." On the other hand, a contextual assumption that is more difficult to construct is less accessible.

A contextual assumption the hearer constructs in anaphora resolution is a representation of a source representation. Therefore, it can be assumed that the accessibility of contextual assumptions is determined by the ease or difficulty (i.e. the amount of processing effort) with which a metarepresentation can be constructed. Let us investigate, then, how degrees of interpretive resemblance between a source representation and the representation of that representation affect the accessibility of a contextual assumption (i.e. the representation of a source representation) to be constructed in terms of anaphora resolution.

To begin with, comprehension of linguistically-controlled anaphora (i.e. surface anaphora) such as verb phrase ellipses or gapping is based on the resemblance in form between an utterance and its representation. Consider examples (6)-(9).

(6)   A: Ivan is now going to peel an apple.
       B: And, Jorge, an orange.   (Hankamer and Sag (1976))

(7)   "I'm angry. And miserable. Peter deserves better." "Shall I go away?"
       "Please <u>don't</u>." Isobel said.   (BNC: CMJ)

(8)   A: Do you think John will take charge of my son?
       B: Maybe he <u>won't</u>. (=(1))

(9)   A: The garbage needs to be taken out.
       B: Well, I <u>refuse to</u>.   (Murphy (1985))

Formal resemblance also exhibits various degrees. In example (6), "Jorge, an orange", gapping in speaker B's utterance, is developed into "Jorge is now going to peel an orange" by way of the resemblance to A's utterance in the immediately preceding discourse. Likewise, the syntactic ellipsis "don't" in (7) can be supplemented by "go away" in the previous discourse. Although the previous discourse as a source representation and the representation of it exhibit a literal resemblance in both examples, it is worthy of notice that the referent of those elliptical expressions is determined by representing the discourse, rather than by directly accessing it. In contrast, we assume that the source representation and the representation of that representation in examples (8) and (9) resemble each other by way of pragmatic reconstruction (cf. Carston (2000:18)). In (8), the source representation in terms of the referent identification of "won't" is regarded as speaker A's utterance. Thus, the elliptical expression is enriched on the basis of the representation of the utterance, from speaker B's viewpoint, as "take charge of your son". In (9), the elliptical form "refuse to" is pragmatically enriched into "refuse to take the garbage out", based on the hearer's speech act representation of speaker A's utterance (i.e. "Speaker A wants someone to take the garbage out"), in spite of the syntactic form of the utterance. Pragmatic reconstruction yielding pronoun alternation and voice switches is an outcome derived from the contribution of metarepresentation.

In these cases, the hearer constructs a contextual assumption (i.e. metarepresentation) from the utterance in the immediately preceding discourse. A contextual assumption that is easier to recall is more accessible (cf. Sperber and Wilson (1986: 77)). We can therefore conclude that greater literal interpretive resemblance between a source representation and the representation of that representation means greater accessibility of a contextual assumption.

In contrast to formal resemblance, we can observe that pragmatic inferences contribute crucially to the construction of contextual assumptions involved in referent identification. Pragmatically-controlled surface anaphora in examples (10)-(12) is comprehended by way of the resemblance in content between a perception of the originator's ostensive behavior and the representation of that representation.

(10)   [John pours another martini for Mary. She says:]
       I really <u>shouldn't</u>.   (Schachter (1977))

(11)   He made a swift gesture of drawing a knife across his throat, rolled up his eyes and gagged. The sound was horribly realistic, a gush of blood in the throat. She cried out: "Oh <u>don't</u>, Darren, please <u>don't</u>!"   (BNC: CJF)

(12)   The record ended and Erika walked off the floor with Herman in attendance. Herr Hocher put on another record, an amateurish jazz band. "<u>Shall we</u>?" Herman said.   (BNC: A7A)

In (10), we need a closer examination of the argument that the referent of the elliptical expression

"shouldn't" is found in the square-bracketed non-linguistic context, which does not indicate any linguistic property of the expression. Rather, it is accessed in the conceptual representation of the originator's (i.e. John's) thought. In (11), Darren's ostensive behavior of showing off the knife involves a communicative intention (or thought) to make manifest an informative intention. The hearer represents the ostensive behavior as an intention to kill her and finds a referent in that representation. In the same way, in (12), Herman calling someone while jazz music begins playing is an ostensive behavior conveying a communicative intention or thought such as an invitation to dance. What matters in these discussions is that the hearer cannot directly access the referent in Darren's or Herman's thought but only in his own representation of that representation.

These cases may provide a certain extent of difficulty with which a contextual assumption can be constructed on the basis of the originator's ostensive behavior or mental state (i.e. thought) which accounts for the behavior. It is not an assumption similar to one that can be retrieved from memory. Therefore, such a contextual assumption is less accessible because accessing it involves more processing effort.

Anaphoric expressions classified as deep anaphora seem to require more interpretation of a non-linguistic context. Example (13) may be a case in which a contextual assumption the hearer accesses bears an implicit resemblance to the source representation via contextual implications.

(13)   [Will has been persuading his friend Marcus to quit singing as often as opportunities allow.]
         Marcus: My accompanist left.
         Will: Well, that's brilliant. Then you don't have to <u>do it</u>. (=(2))

                                                                    (from a movie *About A Boy*, 2003)

In example (13), the referent of "do it" does not appear in other parts of the discourse. A contextual assumption the hearer constructs is less accessible in the sense that it is constructed on the basis of a non-linguistic context where Will has been hoping for a chance to discourage his friend Marcus from singing. Interpretive resemblance between the source representation and the representation of it is exhibited in the following inference.

(14)   a. Marcus' accompanist left. (source representation)
         b. If Marcus' accompanist leaves, it is difficult for him to sing.
         c. This will discourage Marcus from singing. (implicated conclusion)

In the interpretation of the non-linguistic context, interpretive resemblance is found between Marcus' utterance (14a) as a source representation and the implicated conclusion (14c), derived from the combination of (14a) and the implicated premise (14b). Constructing a contextual assumption (i.e. (14c)) for the identification of "do it" needs more processing effort for pragmatic inferences than do examples (6)-(12). The difficulty with which the contextual assumption can be constructed stems from the low level of interpretive resemblance between two representations.

To compensate for the extra effort to process "do it", the hearer must expect to achieve some additional cognitive effects. In the derivation of the implicated conclusion, the hearer can recover a series of contextual implications. (14b) is one of them. Another implication is that Marcus' performance has depended on
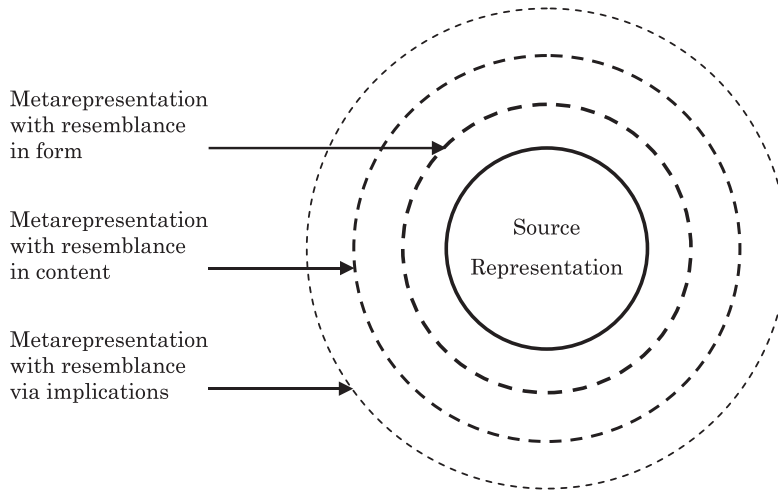
Figure 1. Degrees of Interpretive Resemblance of Metarepresentation to
Source Representation
[Note: A solid line indicates a source representation and broken
lines indicate the representation of that representation (i.e.
metarepresentation)]

his accompanist to the extent that another accompanist would make Marcus' performance disappointing.

Reviewing the discussion so far, Figure 1 indicates how degrees of interpretive resemblance affect the accessibility of contextual assumptions involved in referent identification. The radii of the three outer circles indicate degrees of interpretive resemblance between a source representation (the inner circle) and the representation of that representation (i.e. metarepresentation as a contextual assumption available for identifying a referent). A greater radius indicates a more implicit interpretive resemblance between two representations. The more implicit resemblance between two representations, the less accessible a contextual assumption and the greater the effort involved in accessing it. This figure also suggests that accessing a contextual assumption by way of the resemblance in content to a source representation entails accessing it by way of the resemblance in form and that accessing a contextual assumption via implications entails accessing it by way of the resemblance in form and in content. The size of the circles indicating metarepresentations therefore indicates the amount of processing effort involved in accessing a contextual assumption available for the identification of a referent of anaphoric expressions.

4. Concluding Remarks

We have every reason to think that an anaphoric expression is an indispensable communicative device to point the hearer economically towards the intended referent. However, it is also true that accessibility of a contextual assumption or the processing effort involved in accessing it varies according to the types of anaphoric expressions. With regard to this issue, I have attempted to establish that the differences in both accessibility and processing effort stem from degrees of interpretive resemblance between a source representation and the metarepresentation.

The significance of interpretive resemblance in the account of anaphoric processes is not to be

underestimated. Interpretive resemblance between a source representation and its metarepresentation satisfies the presumption of relevance because it yields an adequate contextual effect for the minimum possible processing effort.

Notes

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1 Actually, we can observe the cases of pragmatically-controlled surface anaphora or pragmatically controlled anaphora (deep anaphora) subjected to a sort of linguistic control. See Sag and Hankamer (1976), Hankamer and Sag (1984) and Schachter (1977) for discussions of the exceptional cases of this dichotomy.

2 See Fodor (1981, 1983) for the view of the mind as a set of modular systems.

3 Like abstract representations such as sentences or propositions, sensory representations (i.e. what is sensed) are non-attributed or stand-alone representations in the sense that they do not belong to any participants in themselves.

4 Noh (2000) elaborates that the notion of resemblance is divided into interpretive use (resemblance in content) and metalinguistic use (resemblance in linguistic form). The concept "interpretive resemblance" essentially involves the issue of content and form between two representations, both of which facilitate anaphoric processes.

5 This definition is extracted from *Relevance Theory Glossary* (cf. Carston and Uchida (1998:295) and Carston (2002:376)).

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Abbreviations:

BNC=The British National Corpus