

Cognitive & Communicative Principle and the Interpretation of Bridging Anaphora

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Abstract

Bridging anaphora, a usual phenomenon in daily communication, is characterized by the anaphoric expressions which are definite noun phrases. This process can be interpreted as the search for relevance by communicators. Cognitive Principle claims that humans intuitively concentrate their minds on relevance and Communicative Principle provides bases for identifying the referents. Bridging anaphora can be expounded cognitively under the framework of Relevance Theory.

Key words: Bridging anaphora; Cognitive and communicative principle; Relevance

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INTRODUCTION

As one of the categories of indirect anaphora, bridging anaphora, focusing on the cases in which the anaphors are only definite noun phrases, cannot be resolved solely on the basis of the propositional form (what is said) of the statement, but requires the hearer to “bridge” the gap between the anaphor and the antecedent and using cognitive inferences to acquire the truly conveyed meaning (what is implied), which can be said as one of the most challenging jobs in indirect anaphoric resolution. That is to say, interpreting bridging anaphora involves more than identifying the information clearly expressed, it covers providing the more relevant assumptions to

those that have already been processed. Relevance Theory includes the cognitive theories as well as the features for utterances in communication and it argues that humans are relevance-oriented in communication. As bridging anaphora is an active phenomenon in daily communication, it is more reasonable to be interpreted within the framework of Relevance Theory.

1. BRIDGING ANAPHORA

The term “bridging” was introduced by the psycholinguist H. H. Clark in 1977 (he terms this kind of phenomenon as bridging reference) to describe the process “by which the existence of a referent which has not itself been explicitly mentioned is inferred from something which is explicitly mentioned”. In this case the entity has not been referred to previously, but its existence can be inferred from something that has been presented. According to his definition, bridging will occur as long as the referent is not explicitly mentioned in the utterances and inferences are needed in the course of determining the referent. Here are some examples given by Clark (1977):

(1) I met **a man** yesterday. **The man** told me a story.

(2) I met **a man** yesterday. **The bastard** stole all my money.

(3) I looked into **a room**. **The ceiling** was very high.

His concern of these examples is that since inferences have to be taken into consideration, bridging implicature will be generated to analyze these statements. It seems that his analyses of bridging anaphora are rather loose.

For example, in (1), *the man* in the second utterance is a reiteration of *a man* as two phrases use the same word *man* in related utterances. The case in which the anaphor shares the same noun with its antecedent does not involve a bridging inference or implicature. There is no need to add the background assumption or to introduce a new entity to locate the right antecedent.

In (2), although it requires a kind of inference to

judge that *the bastard* refers to *a man*, it is not the case of bridging implicature because there is already an explicitly mentioned antecedent in the previous utterance. The anaphor *the bastard* redescribes the antecedent *a man*, which requires no introduction of a new entity. The statement only uses a synonym of the antecedent in the second utterance, which is a case of synonymy.

Whatever sharing the same noun or redescription, there exists co-referential relationship between two items, which is not the case of bridging anaphora.

For (3), in order to determine the right antecedent for the anaphor, the hearer should introduce a new assumption in (3a):

(3a): the ceiling of the room was very high.

It can be seen that clear differences exist between bridging anaphora and other types of anaphoric assignment.

Despite the deficiency, Clark, who is the first linguist to study the bridging anaphora, helps to increase the awareness of this commonly-occurred phenomenon and makes contributions to the resolution of anaphoric assignment.

In the ensuing twenty years or more after the first interpretation of bridging anaphora, a good number of linguists, at home and abroad, have done enormous amount of research on how to resolve the reference assignment of bridging anaphora.

Within these studies, more attention is attracted to Sanford and Garrod's scenario model (Garrod & Sanford, 1981), the topic/focus model by Sidner (1983), Lewis's truth-based approach (Lewis, 1983), the topic model by Erku & Gundel (1987), Tomoko Matsui's pragmatic model (Matsui, 2000). In China, Mo Aiping is the first researcher who carried on a systematic study of bridging anaphora in Chinese discourses in 2003.

1.1 Analysis

Let's take (3) as an example.

In order to interpret (3), the key is to identify the referent for *the ceiling*. Although it is not clearly stated in the first sentence that "*the room has the ceiling*", the hearer may search through his/her common knowledge to get the information: "*the room (in the first utterance) has a ceiling, the ceiling is very high.*" So the hearer must add this assumption so as to complete the communication process. Look at the following example.

(4). I met two people yesterday. The woman told me a story.

In order to guarantee that the communication will go smoothly, the following assumption should be made:

(4a). There was at least a woman whom I met yesterday.

The definite noun phrase *the woman* can be interpreted instantly with the help of the assumption (4a).

2. RELEVANCE THEORY

Relevance Theory, put forward by Sperber & Wilson in 1986 and 1995, can be used to solve the problems in communication, such as "What is communicated?", "How is communication achieved?". According to Relevance Theory, as the discourse proceeds, people in communication will construct and process a number of assumptions, which can help communicators acquire a lot of new information. We assume that people in communication have intuitions of relevance: that they can consistently distinguish relevant from irrelevant information, or in some cases, more relevant from less relevant information (Sperber & Wilson, 2001, p.119).

Relevance Theory shares the Gricean assumption that the hearers are looking for the overtly intended interpretation of an utterance. Different from Gricean assumption that communication must have a common purpose or set of purposes, or at least a mutually accepted direction (Grice, 1975, p.45), Relevance Theory does not assume that it is maxim-based or the communication is necessarily co-operative, that is to say, that speakers and hearers don't have to know and use the general communicative principles, nor do they have to share a common purpose over and above that of understanding and being understood. The basic claim is that what is fundamental to communication—because it is fundamental to cognition—is the pursuit of relevance.

2.1 Cognitive and Communicative Theory

On the cognitive level, Relevance Theory claims that human attention and processing resources go to information that seems relevant. This is expressed as the First, or Cognitive, Principle and Relevance.

Cognitive Principle of Relevance

Human cognition tends to be geared to the maximization of relevance.

Relevance is defined in terms of cognitive effects and processing effort.

The greater the cognitive effects, the greater the relevance;

The smaller the effort needed to achieve those effects, the greater the relevance.

On the communicative level, Relevance Theory proposes every utterance communicates a presumption of its own optimal relevance. This is expressed as the Second, or Communicative, Principle of Relevance.

Communicative Principle of Relevance

An utterance is optimally relevant to an addressee if:

It is relevant enough to be worth the addressee's processing effort;

It is the most relevant one compatible with the speaker's abilities and preferences (Wilson & Matsui, 1998, p.9).

The procedure mentioned above integrates effort and effect in the following way: it claims that the hearer is entitled to expect at least enough cognitive effects to

make the utterance worth his attention, that the processing effort is the effort needed to achieve these effects, and that the hearer is entitled to accept the first interpretation that satisfies his expectation of relevance.

2.2 Relevance-theoretic Comprehension of Bridging Anaphora

Erku and Gundel argue that the only thing which makes it possible for bridging expressions to be recognized as anaphoric is the maxim of relation, i. e. the expectation that the speech act performed in the use of some sentence be relevant to the context in which it occurs (Erku & Gundel, 1987, p.542). In order to interpret bridging anaphora, the factor of relevance must be considered.

Relevance can be considered in terms of cognitive effect and processing effort, as is shown in the following example (5):

(5). Paul put his saxophone down. **The reed** was cracked.

The hearer automatically assumes that the two utterances are relevant and then constructs a context which yields the least effort-consuming conceivable interpretation. In (5), the hearer assumes that there must be sufficient reasons for the speaker to mention “**the reed** was cracked” followed by “Paul put his saxophone down”. Although it is not absolute for the hearer to know “the saxophone has the reed”, according to Relevance Theory, the hearer assumes that the speaker will provide the logical and relevant utterances or it is not necessary for them to communicate at all. Cognitive Principle shows that the hearer tends to pay attention to relevant information and to process them so as to maximize relevance. We can interpret (5) as follows:

- The hearer treats “**the reed**” in the second utterance as relevant information to “saxophone” in the first utterance.

When hearing “**the reed** was cracked”, the hearer continued with his interpreting process:

- “**The reed** was cracked” is the reason for Paul put his saxophone down. Or
- Paul put his saxophone down, as a result, **the reed** was cracked.

Till now, the hearer has achieved the optimal relevance with a series of processing efforts.

This schematic outline of the comprehension process is considerably oversimplified, as in the verbal communication, the situation is quite different and other factors such as communicators’ interpreting capabilities as well as their encyclopedia knowledge may be involved.

3. BRIDGING ANAPHORA AND RELEVANCE THEORY

3.1 Theoretical Basis

According to Relevance Theory, communication is not seen as a process of encoding and decoding, but as “a

process of inferential recognition of the communicator’s intentions” (Sperber and Wilson, 2001, p.9). It claims that beyond the linguistic meaning of an utterance, there is another layer of meaning which might be called “speaker’s meaning” or “intended meaning”, identification of which is the goal of the interpretation process.

Relevance Theory distinguishes two aspects of utterance meaning: what is said and what is implied. The first aspect of utterance meaning, what is said, is called propositional form. The second aspect, what is implied, needs the reader/hearer to infer something further as an intended implicature. The right propositional form is “the one that leads to an overall interpretation which is consistent with the principle of relevance” (Sperber & Wilson, 2001, p.184).

Sperber and Wilson believe that reference assignment clearly belongs to the domain where it should explain how addressees identify those parts of the intended interpretation that goes beyond the linguistic meaning. Tomoko Matsui argues that bridging reference involves going beyond what is explicitly stated in the utterances (propositional form or what is said). In bridging anaphora, there is no explicitly mentioned antecedent in the previous discourse, so the reader/hearer needs to use the clues given by the explicit content (what is said) to draw additional inferences (what is implied) so as to judge the right antecedent.

Look at the example (6):

(6) Bill had been murdered. **The knife** lay by the body.

In order to understand that statement, the hearer needs to distinguish clearly between the propositional information (what is said) that is provided for the hearer and the inferences (what is implied) that the hearer needs to make.

The propositional information tells the hearer simply

- that someone killed Bill;
- that there was a knife;
- that its position was by the body.

It includes other information that is part of the meaning of the words **murdered** and **lay**, namely,

- that Bill was dead;
- that the knife was not in use.

However, in order to make a connection between the two utterances and judge the antecedents for the anaphor **the knife**, the hearer has to add his or her own inferences:

- the body refers to dead Bill;
- the knife was used in the murder.

Only by conforming to these procedures can the hearer catch the truly conveyed meaning of the speaker.

3.2 Bridging Anaphora and Cognitive Theory

By Cognitive Principle, human cognition has a tendency to the maximization of the relevance. Accordingly, Sperber and Wilson hold the view that human cognition automatically tends to maximize relevance because “constant Darwinian natural selection pressure on human

cognitive systems has led to increasing efficiency” (Sperber & Wilson, 2001, p.261). As a result, owing to this universal tendency to maximization of relevance, people will attend to a seemingly relevant stimulus. Let’s return to the example (7),

(7) We stopped for drinks *at the Hilton* before going to *the zoo*. *The baby orangutan* was really cute.

There may be two possible interpretations:

(7a). *The baby orangutan* at *the Hilton* was really cute.

(7b). *The baby orangutan* in *the zoo* was really cute.

However, the hearer will reject the interpretation (7a) on the ground that the baby orangutan is not possible to be found at the Hilton, the antecedent *the zoo* should be selected. The natural interpretation should be (7b):

(7b) *The baby orangutan* in *the zoo* was really cute.

The reason why (7b) is selected should be that relevance is taken into consideration. People have intuitions of relevance: “that they can consistently distinguish relevant from irrelevant information, or in some cases, more relevant from less relevant information”. According to Sperber and Wilson, the aim of Relevance Theory is to “explain in cognitive terms what the expectations of relevance are and how they might contribute to the account of comprehension” (Ward & Horn, 2002, p.607).

The hearer assumes that the speaker tells him valuable information which can worth his attention. He/She will create an expectation why the speaker mentions *the Hilton* and *the zoo*. Hence, the hearer will maximize the relevance between *the Hilton*, *the zoo* and what follows this utterance. By hearing *the baby orangutan*..., the hearer will pay his/her attention and make mental efforts processing these utterances:

- Where is baby orangutan usually seen?
- Why does the speaker go to the zoo?
- “Cute” is usually used to describe a baby living thing, such as an animal or the human being.
- Is it possible to find a cute animal at the Hilton, which is only the name of a hotel?

By drawing those inferences, the hearer will get the interpretation that *Hilton* is the name of a hotel, *the baby orangutan* is not usually found *at the Hilton*, people will go to *the zoo* to visit cute *baby orangutans*.

So the hearer will get rid of the candidate referent *at the Hilton* in and choose the other one *the zoo*.

3.3 Bridging Anaphora and Communicative Theory

By Communicative Principle, it is suggested that “every act of ostensive communication convey a presumption of its own optimal relevance” (Sperber & Wilson, 2001, p.260). Optimal Relevance follows, from the cognitive aspect, a path of least processing effort to achieve the greatest cognitive effect:

- The less the processing effort is needed, the

greater the relevance will be.

- The more the cognitive effect is achieved, the greater the relevance will be (ibid.).

Look at the example (8):

(8) ...closed the shop when the last post brought *a letter*. *The fat envelope* in Sybil’s hand attracted our eyes.

It seems that the most reasonable interpretation of (8) is:

(8a) *The fat envelope* for *a letter* the last post brought in Sybil’s hand attracted our eyes.

However, questions arise now. On hearing the second utterance, how can the hearer infer that *the fat envelope* mentioned in the second utterance was for *a letter* in the first utterance, rather than, say, *the fat envelope* for other things brought by that last post? The answer follows from the notion of optimal relevance.

After hearing the first utterance “...closed the shop when the last post brought *a letter*”, the hearer realizes that the speaker will tell him/her more information of *a letter*, the hearer is expecting to get information about *a letter* in the first utterance, not about other things brought by that post. So the hearer might have access to the following assumption, which is related to *a letter*:

(8b) *The fat envelope* is for the letter. *The fat envelope* in Sybil’s hand attracted our eyes.

A letter mentioned in the first utterance of (8) is then a more reasonable antecedent for *the fat envelope* mentioned in the second utterance. Hence, the following interpretation might be attained:

(8c) There was *a fat envelope* for *a letter* mentioned in the first utterance.

The interpretation (8a) will be achieved according to Communicative Principle, which yields enough cognitive effects by spending least processing efforts.

By contrast, if *the fat envelope* is interpreted as the envelope for other things, more inferences and assumptions will be added and more processing efforts will be spent to access the information (8a). Therefore, the interpretation process will violate the optimal relevance in which the less the processing effort is needed, the greater the relevance will be.

CONCLUSION

Bridging anaphora is an active linguistic phenomenon in daily communication and it appears challenging to be resolved because it involves the cases in which the referring expressions are only the definite noun phrases. In interpreting this process, people’s cognitive inferences are required. Cognitive Principle in Relevance Theory claims that human cognition tends to be geared to the maximization of relevance; Communicative Principle proposes every utterance communicates a presumption of its own optimal relevance. Cognitive Principle and Communicative Principle, as the guideline in the daily communication, can shed some light on the domains

of processing the utterances, resolving the reference assignment and making inferences. Bridging anaphora, as a typical case of reference assignment, can be interpreted under the framework of Relevance Theory.

Finally, the paper would like to point out that Relevance Theory cannot be regarded as a perfect theory, nor will be applicable to any case of bridging anaphora, due to its complexity and flexibility. Further studies and other approaches integrated with existing accounts are greatly needed.

* All the examples are selected from the *Brbooks Corpus of Collins Birmingham University International Language Database (the Brbooks Corpus of COBUILD)*, otherwise clearly indicated.

REFERENCES

- Clark, H. H. (1977). Bridging thinking in *Cognitive Science*. Cambridge: Cambridge University Press.
- Erkū, F., & Gundel, J. (1987). The pragmatics of indirect anaphors. *The pramatic perspective*, 533-545.
- Garrod, S. C., & Sanford, A. J. (1982). The mental representation of discourse in a focussed memory system: Implications for the interpretation of anaphoric noun phrases. *Journal of Semantics*, (1), 21-41.
- Grice, H. P. (1975). Logic and conversation. *Syntax and semantics*, 3, 41-58.
- Hawkins, J. (1991). On (in) definite articles: implicatures and (un) grammaticality prediction. *Journal of Linguistics*, 27(2), 405-420.
- Matsui, T. (2000). *Bridging and relevance*. Philadelphia: John Benjamins Publishing Company.
- Sperber, D., & Wilson, D. (2001). *Relevance: communication and cognition*. Beijing: Foreign Language Teaching and Research Press.
- Ward, G., & Horn, L. (2002). *Handbook of pragmatics* (pp.607-632). Williston: Blackwell Publishing Company.
- Wilson, D., & Matsui, T. (1998). Recent approaches to bridging: Truth, coherence, relevance. *UCL Working Papers in Linguistics*, 10, 173-200.