

# Conversational inferences: the hard way and the easy way

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## Abstract

This paper proposes a general theory of conversational inferences which distinguishes two kinds of inferences: the hard way and the easy way. The theory accounts for a wider range of non-literal utterance meanings than Gricean and relevance theories and is motivated by the types of utterances in which the hearer fails to infer non-literal meanings.

## 1 Introduction

This paper first characterizes the kinds of utterance meanings in the sense of Grice and Levinson which have not been consistently discussed in the existing theories but are important in respect of management of dialog, secondly analyzes the types of inference invoked by the hearer that derive those utterance meanings, and thirdly proposes a general theory of conversational inferences that accounts for a wider range of non-literal utterance meanings than Gricean and relevance theories. We will first outline Gricean theory of conversational implicature and relevance theory in order to give a general understanding of how inferences are supposed to work in the hearer's understanding of utterance meanings, and to characterize the kinds of utterance meanings we are interested in. Those utterance meanings are either what I call a case of *capricious transition* or a case of *misplaced topics*. Grice and his followers explain the first case but they are not sure of what this type really is. They do not explain the second case. In discussing Gricean theory as regards those cases, I stress the importance of Grice's concept of "rationality." The relevance theorists, on the other hand, have also

explained the first case to some extent, but are awkward in dealing with this case in terms of the principle of relevance. Although they seem to have noticed the second case, they have not stipulated a good enough explanation for it.

To fill these lacunae in the existing theories, I propose to look at the conversational inferences in terms of two major categories: the hard way and the easy way. The hard way inference is done by the hearer, using the Cooperative Principle given the fact that one or more maxims are violated. The easy way inference gives the hearer an output of non-literal meaning given the utterance of a certain kind in a certain context. To understand the latter kind of inferences, we need the concept of *adequacy*.

I extend Gricean theory by adding the concept of *adequacy* of observance of the maxims, in order to analyze those inexplicable cases. When maxims are observed, they are observed adequately. When we say maxims are not observed, we mean they are not observed in either of the two senses: namely failing to observe adequately or being observed beyond the adequate level of observance. The hearer needs to know, for example, to what extent the utterance is informative, relevant or perspicuous. I suppose the hearer has to have a criterion with which to judge whether the utterance observes a maxim or not, just because the judgment that it triggers an inference needed to derive what is meant from what is said. This criterion cannot be absolute but relative to what the hearer expects to be adequate for the utterance to be observant of the maxim.

If an observance of a maxim does not reach the adequacy expected, the hearer can derive implicatures by the hard way. But if the topic focused

on by the speaker is different from the one the hearer expected, maxims would be observed beyond the adequate level. In this case, the hearer fails to derive implicatures by the hard way, or derives implicatures by the easy way. What is new in this theory is that a failure of derivation by the hearer can be explained by stipulating the two kinds of inferences. The notion of a failure of derivation is necessary. In the case where the hearer fails to derive useful implicatures, the hearer should first notice that the derivation breaks down, and then the hearer will decide to resume the conversation again. I analyze the case of capricious transition as a case of the easy way inference, and the case of misplaced topics as a failure of the hard way inference.

In this paper I describe the overall mechanism of how the hearer understands utterance meanings. The hearer may understand the literal meaning of an utterance, but there are cases where she has to infer or derive non-literal meanings. Sometimes she infers by what I call the hard way, and reach particularized or generalized conversational implicatures. Sometimes she understands non-literally by using the easy way inference, either getting to conventional implicatures, which I do not look into in this paper, or particularized conversational implicatures. One part of the particularized conversational implicatures have been discussed and analyzed by relevance theory. The other part are the cases of misplaced topics and capriciously transition, which I pay special attention in this paper.

## 2 Gricean theory and relevance theory

### 2.1 Gricean theory

In Grice's program, we derive what is unsaid when it is unnatural to understand what is literally said, on the assumption that observance of the Cooperative Principle and maxims is reasonable. There are several ways in which the hearer understands an utterance non-literally. I focus on one subtype of what is unsaid, which Grice calls "conversational implicatures". The typical case of deriving conversational implicatures in Gricean theory is the case

where the Cooperative Principle is observed, and one or more of maxims is not observed\*<sup>1</sup>.

(1) H: What time is it?

S: Some of the guests are already leaving.

The gloss can be that the speaker doesn't know the exact time, or doesn't want to tell the hearer directly, and that the speaker thinks that saying "Some of the guests are already leaving" gives the hearer a clue to know what time it is. In this case, the maxims of quantity and relation are not observed, and an inference that leads to the implicature gets involved.

In some cases, the speaker's utterance cannot observe one or more of the maxims because of the "clash" of the maxims.

(2) H: Where does X lives?

S: Somewhere in the south of France.

In (2), the speaker cannot observe one or two of the maxims of Quantity because she doesn't say enough. But if she tried to observe the maxims of Quantity by saying exactly where X lives, she would violate the maxims of Quality in the sense that she said what she didn't know.

Grice says, in his lectures "*Logic and Conversation*," that he would like to conclude that observance of the Cooperative Principle and maxims is reasonable, without defining what "being reasonable" means. After that he discussed rational acceptance in his book "*Aspects of Reason*." I take for the discussion in this paper that being reasonable means speaking with justifiable grounds. If we suppose that observance of the Cooperative Principle and maxims is reasonable, the content which the hearer expects to be the implicature of the speaker's utterance may be derived in the way that the utterance satisfies the maxim which is violated or at least gives the reason for violation, in typical cases where the

<sup>1</sup> Grice and Levinson admit the case where the Cooperative Principle and all the maxims are observed to the theory of conversational implicatures. I have refuted this analysis by showing the counterexamples in my paper 2001 (in Japanese). The violation of a maxim should be noticed at the literal level. In my opinion, the utterances in their examples violate the maxims actually. So I categorized the cases which they regard as the case of utterance observing all the maxims as the case of violation of the maxims at the literal level.

cases where the Cooperative Principle is observed and at least one maxim is not observed. What is implicated in the case (1) is, for example, that the speaker doesn't know the exact time. So this implicature satisfies the maxim of relation, for it makes the utterance relevant and acceptable by the hearer. In the case (2), the speaker's utterance implicates the reason that the speaker doesn't say enough. The speaker cannot observe one maxim of quantity, because if the speaker tried to observe one maxim of quantity by giving enough information, she would violate the maxims of quality, in the sense that she said what she didn't know. This case was called the case of "clash" of the maxims by Grice.

## 2.2 Relevance theory

Sperber and Wilson's relevance theory follows up Gricean theory, but is different from Gricean theory in the following two senses: first, they don't need strong heuristics such as Gricean maxims and the Cooperative Principle, so they do not have to assume the violation of the speaker's utterance which triggers the inference needed in Grice's program to derive what is unsaid from what is literally said. Second, their theory, allegedly, can be applied to all kinds of the ostensive inferences. They introduced the principle of relevance, which is to be always observed by participants. In relevance theory, they treat relevance as a relation between a proposition P and a set of contextual assumption {C}. A proposition P is relevant in a context {C} if and only if P has at least one contextual implication in {C}. The hearer always assumes that there is relevance, and tends to extract the maximal inferential effects for the minimal cognitive effort.

## 3 Capricious transition and misplaced topics

Nevertheless, there are types of utterances which are neither explained by the theory of Gricean conversational implicature nor by the relevance theoretic mechanism. We sometimes fail to derive implicatures, and repeat the utterance to the speaker or start the conversation over again. These

are the cases of what I name *capricious transition* and *misplaced topics*<sup>\*2</sup>. Illustrations follow:

- (3) H: Mrs. X is an old bag.  
S: The weather has been delightful this summer, hasn't it?

In this Grice's case, the speaker capriciously changes the topic. I call this case the case of *capricious transition*. Both Gricean and relevance theories have proposed theoretical mechanisms with which to derive the implicature that the speaker doesn't want to talk about the matter. But I don't think either theory is successful in explaining this case, because it is possible for the hearer to interpret the utterance differently, for example, as implicating that the speaker doesn't hear the utterance, or that she thinks the talk of Mrs. X is over and just starts the new conversation.

What the speaker says could be interpreted to observe the Cooperative Principle and all the maxims, if the hearer doesn't want the reply to her utterance "Mrs. X is an old bag." It may be the case that the speaker just started a new conversation, or that the speaker didn't hear the hearer's utterance. Such interpretations are perfectly normal. In our daily conversations, we hear utterances made with unexpected change of topics or a new chunk of conversation starting with a totally new topic. Apparently, we simply do not derive, in such cases, implicatures from what is literally said.

This case was explained by Grice as a case of violation of the maxim of relation. In Gricean theory, the hearer's inference is to be triggered by the violation of the maxim of relation. But this case of violation of the maxim of relation is different from the case of violation of other maxims in the sense that the content of the non-literal meaning derived by the hearer in this case is neither the fact

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<sup>2</sup> In the two cases I present here, the speaker's intention doesn't seem important. In Grice's original theory of meaning, the speaker's intention plays an important role in deriving non-literal meanings. But the hearer cannot know that the non-literal meaning derived by herself is exactly what the speaker intends to convey. So it is unnecessary to assume what the speaker wants to convey for deriving non-literal meanings. In the actual course of conversations, there is no difference between the case where the hearer assumes the speaker's intention and the case where the hearer doesn't assume the speaker's intention in deriving non-literal meanings. I suspect the concept of the speaker's intention might be spurious in the theory of conversational inference.

that the utterance satisfies that maxim which is violated as in (1), nor the fact that it gives the reason that the speaker's utterance cannot observe that maxim which is violated as in (2). This case is puzzling giving Gricean theory alone.

In relevance theory, on the other hand, it is by assuming that the proposition expressed or at least the content of the speaker's utterance is relevant in the context that the hearer will derive the non-literal meaning that the speaker doesn't want to talk about the subject. But their theory is not successful in explaining cases where the hearer interpret that the speaker doesn't hear the hearer's utterance. In relevance theory, the hearer is expected to tend to extract the maximal effect by the minimal effort. The hearer, in this case, should spend more effort until she extracts positive cognitive effects, but when she understands that the speaker has not heard her utterance, she has to give up the efforts and extracting effects from what the speaker literally says, finally to understand that what the speaker has said has no relevance to the previous utterance. What is missed in relevance theoretical mechanism is the criteria that allow the hearer to stop the effort. If the hearer tried to get the implicature which is relevant to the previous utterance at all cost, she could by no means interpret that the speaker didn't hear the utterance.

The other case which is neither explained by Gricean theory nor by relevance theory is a case where we decide not to derive implicature from what is literally said in the course of conversation.

- (4) H<sup>1</sup>: Have you done it?  
S: I've made a reservation for you.  
H<sup>2</sup>: What? Oh no, I'm talking about the book.

I call this case the case of *misplaced topics*. In this case, the hearer thinks that the speaker misplaces the topic. The hearer stops deriving implicatures from what is literally said. There is no sense in deriving implicatures from what is literally said in this case because the hearer judges that the topic the speaker is talking about is different from the one that the hearer expected. The hearer doesn't "infer" the non-literal meanings in terms of Gricean theory, because she doesn't suppose any violation of a maxim. She just tries to let the speaker focus on the topic she wanted to talk about by saying H<sup>2</sup>.

Relevance theory also cannot explain this

case, because there is no relevance in terms of the principle of relevance. In relevance theory, a hearer derives utterance meanings assuming that the proposition expressed is relevant to the context. But in this case, the hearer can only know that the speaker is talking about *a reservation* by the principle of relevance. However the hearer may spend effort to extract the utterance meaning by enriching or loosening the term *a reservation*, it is impossible for the hearer to know that what the speaker says is out of the context and that the speaker misplaces the topic. We cannot derive the meaning that the speaker *misplaces* the topic from the meaning that the speaker is talking about the reservation. The relevance theoretic mechanism cannot bridge the gap between these two meanings. In the case (4), how can the hearer know that the speaker misplaces the topic in terms of relevance theory? The context is given in relevance theory. But in order to understand that the speaker misplaces the topic in this case, the hearer has to alter the context.

Moreover, if the hearer's interpretation in (3) can be that the speaker doesn't want to talk about the subject, then it also can be the hearer's interpretation in (4). But we don't think that the interpretation is more appropriate than the interpretation in which the speaker misplaces the topic. Even if we take the possibility of contextual dependence into consideration, the hearer must give up deriving implicatures at some stage so as to understand that the speaker has misplaced the topic. Relevance theorists would say that the hearer stops conversational inferences when her expectations of relevance are satisfied. But in the case (4), the hearer's expectations of relevance will never be satisfied, because the hearer has to notice the utterance's irrelevance to the context so that the hearer may infer the utterance meaning that the speaker is saying quite another thing.

The problem in the cases (3) and (4) is how and why the hearer fails to derive implicatures. As previously mentioned, there are roughly two types of implicatures in view of Grice's notion of rationality. One is telling the hearer something else by violation; the other is giving the reason that the speaker cannot observe a certain maxim. But what the hearer understands in the two cases in question is neither the satisfying of a maxim nor the giving of the reason for violation. Rather there is no sense in assuming what the speaker says observes the maxims, since what the speaker says in these cases

is beyond the hearer's expectations. So we have to examine the mechanism the hearer utilizes in estimating and judging the observance of the maxims.

#### 4 The observance adequacy of the maxims

I propose to extend Gricean theory by adding the concept of *adequacy* of observance of the maxims. It is beneficial to extend Gricean theory in the following two reasons: firstly, we often need reasons to explain why we derive a certain implicature. We have to leave the door open for the possibility of describing the process of derivation conducted by the hearer herself, even if the reasons are after-thoughts and if the process is not exactly what she has done in her mind at that time. We have to be responsible for implicatures. Further, relevance theoretical inferences have the potential of developing to Gricean theoretical inferences which need the violation of maxims to be invoked. In the case (2), the implicature that the speaker doesn't know exactly where X lives can be drawn both in Gricean theory and in relevance theory. So the two theories are equally able to explain this case. But if you are asked why you think that the speaker doesn't know exactly where X lives, you will explain the reason in the following manner: the speaker would say exactly where X lives, if she knew it, so I infer the meaning that she did not know. This explanation is based on the hearer's assumption that the speaker's utterance observes the maxims, in which the conversational inference is triggered by the violation of a certain maxim at the literal level. We might not need to assume the maxims in the course of actual derivation, but we have to develop the Gricean process which seems reasonable when we describe it to others.

Secondly, as discussed in Levinson's work, there must be the generality of implicatures, that is, what Grice calls the generalized implicatures. For example, we generally think that "some" means "not all" in conversations. Similarly, we generally think that a certain utterance implicates a certain implicature, other things being equal. It is plausible, for example, that "somewhere in the south of France" in (2) implicates that the speaker doesn't know exactly where, unless we assume the context in which the speaker is not going to cooperate with the hearer. This assumption of being uncooperative

is not general. Therefore, I would like to construct my theory on the ground of Gricean theory. Gricean theory has importance to know what we think is inference conceptually.

The hearer fails to derive implicatures in the cases of *capricious transition* and *misplaced topics*, because the hearer doesn't judge whether the utterance observes the maxims or not, in the same way as in (1) or (2). What the hearer understands in (3) and (4) seems to be some sort of implicatures, but that neither satisfies the maxims nor gives the reason for violation. This kind of utterance meanings is puzzling, because Gricean maxims are scarcely able to contribute to the derivation. Therefore, we have to clarify how we assume the observance of the maxims.

In the Grice's program, even in the typical cases such as (1) and (2), the adequacy of observance of the maxims is not clear. It is not clear, for example, to what extent the utterance is informative, or perspicuous<sup>3</sup>. We think that what the speaker says in (1) is not relevant and not informative enough intuitively. However, in the case of the maxims of quantity for example, there is no measure of "being as informative as is required" and "not being more informative than is required". By whom is it requires to be informative? Of course by the hearer. The hearer has to have some criterion with which to judge whether the utterance observes a maxim or not.

According to this criterion of adequacy, the hearer can notice that there is no sense in assuming observance of the maxims in (3) and (4). I distinguish the two kinds of inferences in relation to this concept of adequacy of observance of the maxims. The utterance observes the maxims less adequately, and the hearer can make use of literal information and derive implicatures, which satisfies the maxim that is violated or gives the reason for the violation by the Gricean way of inferences. I call this type of inference *the hard way*. The utterance observes the maxims beyond the adequate level, the hearer

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<sup>3</sup> Regarding the adequacy of observance of the maxims, I haven't mentioned the observance adequacy of the maxims of quality because it seems incomprehensible how the hearer "tries to make her contribution one that is true" adequately, because we don't have the notion of being adequately true. The observance of maxims of quality, however, must have some connection to that of maxims of quantity. The hearer wouldn't care whether surplus information is true or not, for it is not necessary. We need more detailed argument on this issue, so I refrain from discussing it in this paper.

cannot make use of literal information for derivation, so the inference by the hard way will break down. Then the hearer will suppose that the speaker doesn't participate in the conversation, or that she has not heard the hearer's utterance. This type of inference I call *the easy way*. After I explain the hard way and the easy way inferences, I will show the connection between the adequacy of observance of the maxims and the two ways of inferences.

## 5 The hard way and the easy way

I introduce the dichotomy of conversational inferences: the hard way and the easy way. The dichotomy is justified by Grice's discussion in "*Aspects of reason*," where he distinguishes "the hard way" from "the quick way." The dichotomy proposed here is not the same as the distinction between Grice's two types of inference, and, in particular, the easy way described below is different from what Grice called the quick way. Grice's quick way is "a substitute for the hard way, which is made possible by the habituation and intention". But my easy way is not a substitute for the hard way but it is a different kind of inference than the hard way. The best part of the non-literal meanings Grice explained successfully is the inference by the hard way, namely the inference that derives conversational implicature. Part of the easy way inferences are those inferences discussed successfully by relevance theory, which fails to describe the important subset of the easy way inference that take place in the cases of misplaced topics and capricious transition.

### 5.1 The hard way

The inference by the hard way is to make the utterance acceptable and understandable by the hearer by deriving utterance meanings from what the speaker literally says. This type of inference has been familiar to us since Grice's Harvard lectures. I view this way of inference as derivation by way of literal input. In other words, the hearer makes use of the proposition expressed at the literal level in order to derive implicatures. The hearer judges that the utterance doesn't observe a certain maxim, and starts to infer non-literal meanings. In the cases of the maxims of quantity or the maxim of relation, the utterance gives the hearer less information, or less great relevance than the hearer re-

quires, but there remains something that the hearer can make use of. The cases (1) and (2) exemplify this type. The hearer derives implicatures that it satisfies the maxim which is violated, or gives the reason for the violation at the literal level.

In the cases (3) and (4), the hearer cannot derive implicatures by the hard way. When the literal meanings are useless for derivation, or when the hearer can get only useless consequences, the hearer fails to derive implicatures by the hard way. For instance, the hearer will say "What?" to the previous speaker to indicate that she has failed to derive useful implicatures, or she will start the conversation over again. The case of misplaced topics is explained as a failure of the hard way, when the hearer says "what?" to indicate that she did hear what the speaker says but couldn't understand it. In the case (4), the hearer cannot derive useful implicature, so she indicates that she hasn't understood what the speaker says on the assumption that the utterance observes the maxims. Then she retries conversation. Thus, given the notion of a failure of the hard way, the case of non-understandings can be explained in the theory of conversational inferences. In the case (4), the hearer starts to envisage why she doesn't understand the speaker's utterance. I would say that the non-literal meaning that the speaker must have misplaced the topic is derived by the easy way.

### 5.2 The easy way

The easy way inferences are less effort demanding, need fewer steps than the hard way inferences. In the easy way inferences, we normally have two steps alone: the literal input and the non-literal output, and that's it. Even the speaker's emotions could be taken as utterance meanings, as in the case where the speaker doesn't want to talk about the subject. The typical example is the case of capricious transition. The following example beautifully illustrates the easy way inference:

- (5) H: I finished writing that story and it's going to be published.  
S: When?

The gloss of what the speaker says could be either of the following two interpretations: "when did you finish writing that story?" or "when is it going to be published?" The selection one of these two interpretations is by the easy way. The hearer uses

the literal input, “when,” in the process of extracting the potential interpretations, but the literal input is not informative enough to justify the selection of one or the other. There is no decisive factor so that the hearer is free to take whichever she likes. The hearer doesn’t need to have reasons for deriving utterance meanings on the ground of the violation of a certain maxim, but just connects what the speaker says with whatever the hearer understands. The hearer can derive what is supposed to be implicated from what is literally said directly without using the literal input as indicates the violation of a maxim.

### 5.3 The connection between the adequacy and the two ways of inferences

There is a reason for having two kinds of inference rather than one uniform kind. It depends on the observance adequacy which the hearer expects. If what the speaker says observes the Cooperative Principle and some of the maxims, her contribution is, for example, less informative, or less relevant. But there remains something we can make use of for derivation, because the information or the relevance is not zero. If what the speaker says doesn’t seem to observe any of the maxims, or what the speaker says doesn’t seem to have any connection with the previous utterance, then the speaker’s contribution conveys no information, or bears no relevance. So we cannot make inferential steps using the literal input in the same way as the hard way. Then we connect the input with the output directly. But we should note that a failure of the hard way doesn’t always make us shift to the easy way. It is likely, in some cases, first to fail by the hard way and then to try deriving an utterance meaning by the easy way. But the hard way process doesn’t precede the easy way process theoretically, and vice versa. The choice of process depends on the hearer, and thus the theory has to be based on the dichotomy of conversational inferences.

Now there are five cases an inference-based theory of language understanding has to give an account of. They are

[1] the case of the literal meaning understood literally

[2] the case of the typical Gricean conversational implicature

[3] the case of regular relevance theoretic inference

[4] the case of capricious transition

[5] the case of misplaced topic

The inferential process for the regular Gricean conversational implicature can be described as follows: The hearer gets what is literally said, and measures the adequacy of observance, and if the utterance observes the maxims less than adequately, then the hearer starts the hard way inference on the assumption that the speaker’s contribution is rationally acceptable, and derives implicatures.

The inferential process for the regular relevance theoretic mechanism can be described as follows: the hearer gets what is literally said, and measures the adequacy of observance of the maxims. If the hearer wants to derive utterance meanings further by enriching what is literally said, on the assumption that the utterance is relevant in the context, in spite of the utterance observing the Cooperative Principle and all the maxims\*<sup>4</sup>, then the hearer starts the easy way inference and derives implicatures. In a case which is similar to (5) but which offers only one option on condition that the utterance is relevant to the given context, the hearer derives utterance meanings by the same way as the relevance theoretic inference which I subsume under the category that is I call the easy way.

Now when the hearer fails to derive implicatures by the hard way, she will start the conversation over again. It is the case of a failure of the hard way inference when the hearer doesn’t notice that the topic of the speaker’s utterance is different from the one the hearer expected and says “what?” to the speaker. That is the case (5) of misplaced topics.

And it is by the easy way that the hearer comes to know that the speaker misplaces the topic. The hearer gets what is literally said, and measures the adequacy of observance of the maxims, and if the utterance is far from being adequately observant of the maxims, then the hearer starts the easy way inference and derives implicatures. The inferences in this case can be based on anything, for example, the hearer’s frame of mind. The case of capricious transition (4) is of this type. Utterances to start and to change the topic are classified in this type, though the existent theories have not given

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<sup>4</sup> I suppose that what the hearer understands in the case where the utterance observes the Cooperative Principle and all the maxims includes explicatures in the sense of relevance theory.

any theoretical status to this type of utterances.

## 6 Conclusion

On the basis of the concept of rational acceptance in conversations, I have extended Gricean theory by adding the concept of observance adequacy of the maxims, and have defined two distinct types of inference in terms of the concept of observance adequacy. Hearers derive utterance meanings in different ways based on the different level of adequacy of observance of the maxims measured. The extended Gricean theory now can describe all ways the hearer derives utterance meanings in all cases. The relations between different kind of inferences and their coverage are shown in Fig 1.

We still have four more problems to really complete the theory of conversational inferences.

- 1) We need to give more consideration to the nature of those inferences. Specifically, we have to justify the assertion that the easy way inference is an inference, because it seems to be different in nature from inferences Gricean theorists have thought of.
- 2) I have not distinguished implicatures from what the hearer understands explicitly. I surmise that, at the level of derivation, failing to understand the speaker and assuming the reason for non-understanding are different (such as assuming that the speaker misplaces the topic, which would make the hearer retry the conversation). I suspect the latter will be explained as a kind of meta-level inference, but we need more arguments and evidence.
- 3) The notion of “being rational” should be studied further. It is not clear what Grice meant by saying that the derivation in interpreting utterance meanings is a rational activity. We have to know a sort of measure or extent of being rational. Theoretically, anything goes by the easy way inference. But we would reject some interpretation because it being too hard to justify. It would be an important issue in the general theory of conversational inference to characterize the mechanism the hearer uses in keeping herself from not drawing too inappropriate utterance meanings.
- 4) The solution I provide in this argument is not fully formalized yet. I suspect one possible formalization can be given by using the DRT by treating the cases of misplaced topics and capricious transition in terms of inaccessibility in the DRT, al-

though further independently motivated elaboration is necessary in the theory to formalize the case of being inaccessible. As far as I know, I don't know that the DRT can formalize the case of being inaccessible well, for example, when a pronoun has no referent in any previous discourses. In such cases the sentence in question might seem to be ungrammatical, or at least not understandable unanimously, but in the two cases I have presented, the hearer notices that the speaker refers to the other referent than the one the hearer wants to refer to.

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Fig. 1

