Felicity Condition of Korean and English Contrastive Topic[1]

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Abstract

This paper attempts to provide a sketch of formalism for Contrastive Topic in Korean and English. Based on the idea that a discourse structure basically consists of question/answer pairs, the proposed formalism shows 1) Korean contrastive topic corresponds to a certain prosody in English and the information structure for contrastive topic in both languages is essentially same, 2) Contrastive topic always presuppose a bigger question, and 3) the presupposition can be either explicitly satisfied by the preceding question, or implicitly accommodated so that the answer can be felicitous.

1. Introduction

A widespread attitude to Korean topic marker, *nun,* is that it has two functions, one is theme presentation and the other is contrastive topic marking. It has been a lot of controversy on the nature of these two functions associated with the topic marker in Korean or Japanese, whether they are essentially one category or not. Based on Hoji's (1985) observation that they show quite different syntactic behavior from functional categories, assuming that the two functions correspond to two separate functional categories, I will concern contrastive topic only in this paper, postponing the analysis of the theme presentation function for a future research.

Most Korean or Japanese linguists acknowledge the notion of contrastive topic, but very few precisely captures the essential semantic and discoursal meaning associated with contrastive topic in a formal framework. In this paper, I attempt to provide a sketch of a formalism for the treatmen of Korean contrastive topic. For this, I will first show that Koran contrastive topic corresponds to a certain kind of prosody in English, which is a fall-rise intonation.

Given that English has the same function as Korean Contrastive Topic, recent increasing researches on information structure and prosodic focus theory (Rooth 1985, 1992, Partee 1991, Krifka 1992, Vallduvi 1992, Roberts 1996, Steedman 1991, Von Fintel 1994 etc.) deepen our understanding of information structure associated with Korean contrastive topic, too. Especially, by exploiting the idea of Robert and Buering, I will provide a formalism for a proper treatment of the notion contrastive topic not only for Korean but also in general.

2. Formalism for Contrastive Topic

2. 1 Correspondence between Korean and English Contrastive Topic

Jackendoff(1972) categorizes two kinds of intonational pattern in terms of the

informational function of the expression dubbed with that particular intonation. One is called A-accent, which is a falling accent, and the other is called B-accent, which is a fall-rise accent. The A-accent is said to carry the information of *rheme,* whereas B-accent is said to carry *theme* information. The prosody that I believe correspond to Korean contrastive topic is this B-accent. Under Pierrehumbert's (1980) description of intonational patterns, this fall-rise contour is described as L+H* LH%, which is a pitch accent consisting of an ordered pair of two tones, low (L) and high (H), followed by L phrase accent and H% boundary tone. Since "*" marks accented syllables, the accented syllable is aligned with the H tone of the L+H*LH% pitch accent.

The corresponce between Korean and English contrastive topic is illustrated in the exmples in (1) and (2).

(1) a. A: What did the kids eat?"
    b. B: [Fred]$_{B\ accent}$ ate [the beans]$_{A\ accent}$.

                                       Fred-**nun**   kong-ul   mekesse.
                                            CONT   beans ACC ate
    c. B: They ate [the beans] $_{A\ accent}$.   ay-tul kong mekesse.
                                            Kids   beans ate

(2) a. A: Who ate the beans?"

    b. B: [Fred]$_A$ ate the beans.   Kong Fred-ka   mekesse
                                            Beans   SUBJ ate
    c. B: [Fred]$_{A\ accent}$ ate [the beans]$_{B\ accent}$.   Kong-**un**   Fred-ka   mekesse.
                                            Beans **CONT**   SUBJ ate

In (1b), *Fred* with *nun* marking in Korean correspond to *Fred* with B-accent in English, and in (2c) *kong* 'bean' with *nun* marking corresponds to *the beans* with B-accent in English. In the next section, let us examine the semantic formalism of contrastive topic.

2.2 Semantics of Contrastive Topic

The function of B-accent seems to be of two kinds: From the **sentential** perspective, one function of this tune is to mark "what the utterance is about" and indicates a constituent whose translation corresponds to an open proposition established by the question, as discussed in Steedman (1991, 1994) and Pierrehumbert & Hirschberg (1990). Thus, in categorial grammar, the constituents marked by this tune in (1b) and (2c) are translated as $\lambda x\ eat'(Fred', x)$ and $\lambda x\ eat'\ (x, beans')$ respectively. From the **discoursal** point of view, this particular intonation marks the proposition contrasted with the alternatives that are implicated by the previous discourse and/or context. In case of (1b), *Fred* is marked as standing in contrast to some other person in the discourse domain, and in (2c) *the beans* is contrasting with some other comestibles which is not known in this example. This interpretation of fall-rise intonation in English exactly matches with the interpretation associated with Korean contrastive topic. Given this correspondence, various researches on focus theory can provide us a good starting point for developing a more suitable framework that explains the function of contrastive topic in Korean, and further in general. For example, Steedman (1991, 1994) provides a framework that can nicely incorporates topic marking phenomena associated with fall-rise intonation based on combinatory categorial grammar in sentential level. Given that topic marking is essentially a discourse functional phenomenon, however, an analysis from the discoursal

point of view seems to be indispensable for understanding the discoursal function of topic marking. In that sense, Buering's (1994) and Roberts'(1996) formalisms for English contrastive topic associated with fall-rise intonation can be an excellent contribution to a proper analysis of Korean contrastive topic. They provide a proper *information structure* of *context* for contrastive topic by looking beyond a sentential level. Both approaches are essentially same in that they both are based on the perspective on information structure stemming ultimately from the work of Carlson's (1983) dialogue game approach, with the only difference that Roberts' is more like procedural algorithmic formalism, whereas Buering's is more like schematic formalism such as a filtering device. For treating Korean contrastive topic, I will adopt and extend Buering's (1994) formalism, which itself was an extension of Rooth's (1985, 1992) *alternative semantics* framework.

Let us see how Buering's analysis works. Based on the idea that a discourse structure basically consists of question/answer pairs following Carlson (1983), both Buering (1994) and Roberts (1996) think that at any stage of a discourse there is a restricted range of possibilities as to where the conversation might move to next. This range of possibilities is viewed as a set of sentences with which the conversation might be continued. Buering calls this set as a *topic* (which should be distinguished from contrastive topic), and the most straightforward way to establish a topic is to ask a question. For example, in the discourse (1), the question is represented as a set of propositions, T as in (3a), supposing that there are only two comestibles in the discourse domain, *the beans* and *the potatoes*.

(3) a.T = {u ate u'| u,u'∈D & u=kids' }
   = {the kids ate the beans, the kids ate the potatoes}
   b. [[kids]]= {Fred, John}

In (1c), the A-accented part, i.e. rheme information, must be the information which is asked for by the question. Following Rooth (1985), a second semantic value, which is called *focus semantic value,* $[s]^f$ for short, can be derived from a sentence which has a rheme information like (1c). The *focus semantic value* will be obtained by sticking in the alternatives for the focused part. That will be a set of the propositions as in (4).

(4) $[1c]^f$ ={the kids ate the beans, the kids ate the potatoes}

In order for a sentence *s* to be appropriate, the *focus semantic value* of *s* must be the same as T, which is the set of propositions representing the question. So, the *focus semantic value* of (1c), which is (4), must be the same as the set of propositions in (3a) established by the question (1a), so that the response (1c) is an appropriate response to the question (1a).

Now, consider (1b). Suppose the kids are only *Fred* and *John* in this discourse domain. Since the question is about all the kids in the domain, that is *Fred* and *John*, the answer given in (1b) is not a full answer. Assuming that an answer is supposed to include all those true propositions for the given question, B's answer in (1b) doesn't seem to be an appropriate answer, since it is not answering for John. It is acceptable, however, as a felicitous answer with the fall-rise intonation on *Fred* in English, and with *nun* marking in Korean. Since the answerer is aware of the existence of the other kids than *Fred*, she is using *nun* marking or fall-rise intonation to mark that it is a partial answer for the question. Buering refers to this fall-rise intonation as *topic accent,* and I assume that this rising intonation is L+H*LH% intonation, or B-accent. By this, we can see the function of B-

accent. Buering regards this topic as **sentence internal topic (s-topic)** which is distinguished from **discourse topic (d-topic)**, that is T, established by the preceding question.

For the sentence which contains a B-accented item like (1b), Buering proposes another semantic value called *topic semantic value,* $[s]^t$ for short. This is essentially the same as the given T, but the only difference is that the topic semantic value partitions the given discourse topic in terms of **s-topic**. That is *Fred vs. John* in this case. The topic semantic value is obtained by sticking in the alternatives to the **s-topic** for the **s-topic** itself. In the case at hand, the **topic semantic value** will be the set of propositions as in (5a), and we will get the **focus and topic semantic value** of (1b), $[(1b)]^{tf}$, as in (5b).

(5) a. $[1b]^t = \{$Fred ate $[$the beans$]_F$, John ate $[$the beans$]_F \}$
   b. $[1b]^{tf} = \{$Fred ate the beans , Fred ate the potatoes ,
       John ate the beans , John ate the potatoes $\}$
   c. $[1b]^f = \{[$Fred$]_T$ ate the beans, $[$Fred$]_T$ ate the potatoes$\}$

According to Buering, the **s-topic** serves to narrow down the **d-topic** so that an exhaustive answer can be given. In case of (1b), the function of **s-topic** *Fred* is narrowing down the **d-topic** by replacing the original **d-topic** (3b) with (6) below. Then, B's answer about *Fred* only is providing the exhaustive answer for the **s-topic,** even though not for the **d-topic**.

(6) **s-topic** of (1b) = {Fred ate $[$the beans$]_F$} ={Fred ate the beans, Fred ate the potatoes}
       $= [1b]^f$

Note that the **topic and focus semantic value** of (1b), i.e. $[(1b)]^{tf}$ in (5b), is equivalent to the **d-topic T** established by the question (1a), which is given in (3). Note also that (1b)'s s-topic in (6) is the same as its focus semantic value given in (5c).

Given that, Buering formulated felicity condition of discourse that can accommodate both (1b) and (1c) as in (7):

(7) A sentence s can be appropriately uttered given a topic T iff
   a. $\cup[s]^{tf=}\cup T$ and [2]
   b. $[s]^o$ is an appropriate response to $[s]^f$.

By 'appropriate response' he means 'true exhaustive answers for the given question'. In the case of (1b), $[(1b)]^{tf}$ is the same as the **d-topic** (3), and $[1b]^0$ (the normal semantic value of (1b)) is the true exhaustive answer to $[1b]^f$, that is (5c).

Looking at the graphic representation in Figure (1), let us more closely examine the mechanism of the process of narrowing down the **d-topic** into **s-topic**. One possible way -- actually more regular way -- to answer the given question is by providing an answer about the original **d-topic** without narrowing down into a part of it as in (1c). If all the *kids* ate the beans, you could simply answer with the **d-topic** itself without diving the **d-topic** into several **s-topics**. That is exactly what is represented in the Figure (1b). The constraint (7a) checks if the s-topic is one of the propositions of the set, d-topic. For example, it checks if (1b) is a relevant answer for the given question.[3] This constraint filters out an irrelevant answer such as (8b):

(8) A: What did the kids eat?
   B: Mom ate the beans.[4]

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a.

(1a) T = d-topic=(3b)

b.

(1a) T = d-topic

(1b)s-topic
= (6)

residual
d-topic
= (3b) - (6)
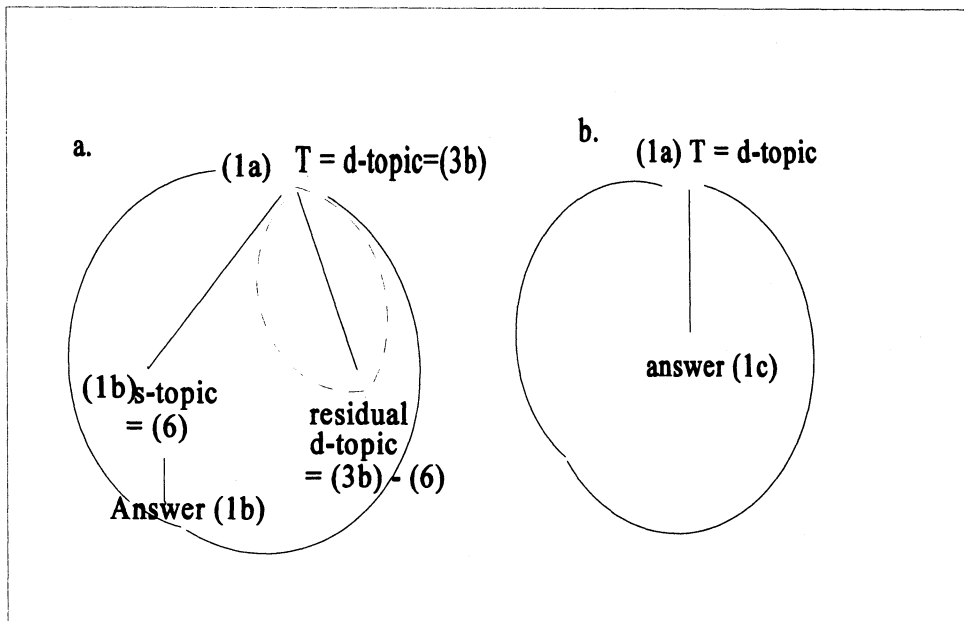
Answer (1b)

answer (1c)

Figure 1

In case of (1b), since we know that the alternatives to the **s-topic** and the alternatives to the focus of (1b) are the same as the **d-topic** T established by the question (1a), (1b) obeys the constraint (7a). Therefore, the actually uttered sentence is a member of the set T. The constraint (7b) requires us to consider the narrowed set excluding the alternatives to the **s-topic** from the **d-topic**, e.g. excluding the propositions about *John* in this particular example. These excluded propositions are called **residual d-topic** by Buering. So, (1b) is the exhaustive list of the true propositions from the set consisting of the propositions about *Fred* only.

When one does not want to, or cannot answer directly about the **d-topic**, one can narrow down the **d-topic** into **s-topic**s and take one of them and answer about it. Given relevancy, so long as (7b) is observed, that is, so long as the sentence *s* provides an appropriate (true and exhaustive) answer to the narrowed- down **s-topic**, the utterance *s* can be regarded as an appropriate response, even though it does not provide an exhaustive answer for the original question. Once it is narrowed down into **s-topic**, [1b]^f serves as the **topic** for [1b]° -- the normal semantic value of (1b).This is the constraining mechanism for topic marking as in (1b). Buering's mechanism seems to work well for the discourse (1) in this way. In the next section, however, I will consider the other case of topic marking which does not obey the constraints in (7) such as in (2).

2.3 Contrastive topic marking by accommodation

Reconsider the discourse (2). The topic given by the question (2a) is like (9), supposing again *u* is either *John* or *Fred*:

(9) T={u ate u'| u, u' ∈ D & u'=beans}
    = {John ate the beans, Fred ate the beans}

Assuming that there is no other previous discourse, the question (2a) does not presuppose any other comestibles than *the beans* in the domain. So, the expected answer would be one of the two propositions in (9) without any topic marking. But, the given answer (2b) is marked with a topic marker *nun* or B-accent for *the beans*. This is unexpected. And this does not obey Buering's principle given in (7). In order for *nun* marking is legitimated, there should be something else in the domain. So, the **topic focus semantic value** of (2b) is not just (9), but it also needs to be added by more propositions containing some other comestibles contrasting with *the beans*, although it is unknown to the speaker of (2a) at this stage of discourse. This is why Carlson's following example is valid.

(10) Jury: What did you hit the victim with?
　　　Suspect: I hit [him]$_{B-accent}$ with a bicycle chain.

The answer with B-accent on the word *him* is dangerous, since it suggests that there are other victims that was hit something else than the bicycle chain. Likewise, $[2b]^{tf}$ must be something more than (9) as in (11).

(11)　$[2b]^{tf}$ = {John ate [the beans]$_T$, Fred ate [the beans]$_T$}
　　　　　　= {John ate the beans, John ate something else,
　　　　　　　　Fred ate the beans, Fred ate something}

The information structure of the question (2a) and that of the answer (2b) are different from each other. As graphically represented in Figure 2, the expected discourse structure in (2a) is supposed to be like Figure (2a), but the answer (2b) suggests a different discourse structure as in Figure (2b).
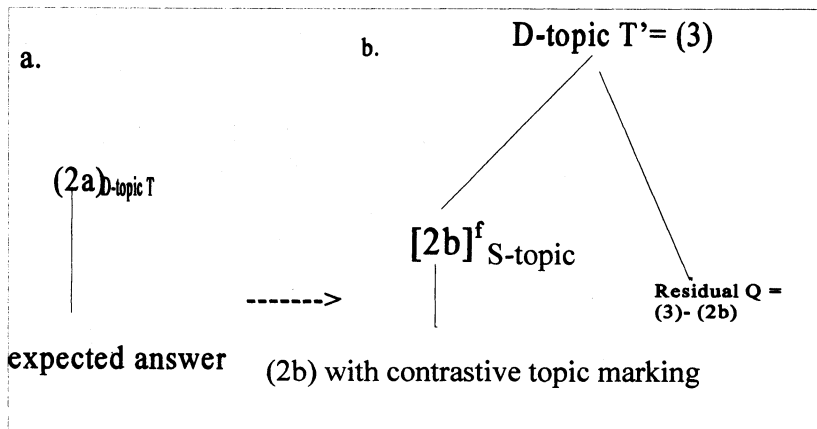
a.　　　　　　　　　　**b.**　　　　**D-topic T'= (3)**

(2a)$_{D-topic\ T}$

　　　　　　　　　　　　　　　　$[2b]^f$ S-topic

　　　　　　- - - - - - - >　　　　　　　　　Residual Q =
　　　　　　　　　　　　　　　　　　　　　　(3)- (2b)

expected answer　(2b) with contrastive topic marking

Figure 2

Although (7a) is not met, (2b) is a felicitous response. This shows us that sometimes Contrastive Topic marking not only indicates it is contrasting with something already existing in the domain, it also can do something more. More specifically, the function of the fall-rise intonation in (2b) is 1) to reconstruct the discourse structure, 2) to invite the hearer to **accommodate** the newly suggested structure and then 3) based on that newly accommodated structure, to give an appropriate answer. Thus, the violation of the constraints (7) by this topic marking needs be resolved by restructuring the discourse by accommodation. In order

for our theory to be able to accommodate this special kind of topic marking, we need revise the constraint (7) as in (12):

(12) A sentence s can be appropriately uttered given a topic T iff
    a. Either **I)** $\cup[s]^{tf=} \cup T$
        or **ii)** $\cup[s]^{tf=} \cup T'$ such that $([s]^f \cup T) \subseteq T'$
    and
    b. $[s]^o$ is an appropriate utterance to $[s]^f$.

(12) is the same as (7) except for the second clause of the first condition. The second clause of the first condition allows us to construct a superset **T'** which contains the given topic **T** and the **focus semantic value** of the actual utterance S as its **s-topic**. Even though the topic focus value of *[the beans]* is not known yet, by the topic marking for *the beans*, we know at least that there exists something else contrasting with *the beans*. Accordingly, the topic marked item must be treated as a partial topic belonging to a larger set than the one established by the original question (2a). The difference of the topic marking in (1b) and (2b) is that in (1b) the topic marked sentence is a member of the already established topic **T** whereas that of (2b) is a member of a newly accommodated topic **T'** which is larger than the original topic set up by the previous question.

      Keeping the findings so far in mind, let us look at another kind of example. Consider the example with a kind of a fall-rise intonation on the word *pie* in (13).
(13) A: Do you have Jell-O?
      B: I have [pie].
This example is originated from Ward& Hirschberg(1985), where they claim this particular intonation should be distinguished from the other B-accent in both phonetic realization and interpretation. They claim that this intonation is L*+HLH% in which the high peak is much more delayed than the other fall-rise intonation L+H*LH%. Regarding this particular intonation, different people claim different stories. In spite of the various kinds of claims on this particular intonation, its meaning associated with this intonation contour has not been precisely characterized, let alone formal analysis. And there are very few that views this fall-rise intonation as virtually the same thing as the other fall-rise intonation. Jackendoff (1972) views this as a B-accent. Taking the same position as Jackendoff, I propose that these two kinds of fall-rise intonation are just allophonic variation of essentially the same intonation contour, in that they both correspond to Korean contrastive topic marking *nun* and that they both can be accounted for by the same mechanism developed for the previous cases. If we assume that *pie* in (13b) is the same kind of contrastive topic marking as in (1b) or (2b), everything goes well within our framework. Let us see how it works.

      In this discourse, the semantic values of the question (13A) will be a set of two propositions that would be potential answers, that is {you have Jell-O, you don't have Jell-O}. Thus, the proper answer for this question would be picking up one member of the set. But, the answer (13B) is not a member of the set. What the fall-rise intonation does as the topic marker in (13B) is to reconstruct a larger **d-topic** which is a set of propositions containing (13B) as a member of it. So, the bigger question that could determine **T'** as a **d-topic** for this discourse context would be something like "Do you have anything for desert?". If we assume this is the larger question, then, the **d-topic** will be something like (14):

(14)T = {you (do not) have u| u ə D & u ə desert'},
        where [[desert]]={pie, ice-cream, Jell-O, ...}

Given this d-topic, (13B) is narrowing down this **d-topic** into an **s-topic** which should look like the following (15):

(15) {I have pie, I don't have pie}

If we verbalize the pragmatic implication associated with (13B), it will be something like this: "if the topic is 'pie' instead of the one previously mentioned, I do have it. But, I am not in a situation in which I can provide a positive answer for the item you asked about." One possible reason for the speaker not to provide the direct answer for the given question is that they don not have it but don not want to directly say it in order to be polite. .

       Not only this example, all the other examples that Ward&Hirschberg presented can be explained in the same fashion, and each of them corresponds to Korean topic marking. Let us look at some more examples. The square brackets indicate the location of the fall-rise intonation.

(16) A: What time should I come tomorrow?
     B: 3:30. ... Can you come in at 3?
     A: I [**can**]. Should I?   O-l su- **nun** isse.   o- aya-toi?
                                            come way CONT there is come should

(17) A: Will Uncle Michael and Aunt Carolyn be coming to the rehearsal dinner?
     B: They are [**invited**].   Choday-**nun** toisse.
                                             Invitation CONT is done

(18) A: Do you know what time it is?
     B: I can find [**out**].   al-a-nay-l su-nun   isse
                                             Find out way CONT there is

(19)   A: The party is Friday the seventeenth.
     a. B: [**Friday**] isn't the seventeenth.   Kumyoil-un   17il   -I anya.
                                                 Friday   CON   date SUB not BE
     b. B: Friday isn't the [**seventeenth**].   17il-un   kumyoil-I anya.
                                                  date CON Friday SUB not BE

All these examples can be explained by the formalism (12), while showing consistent correspondence between the L*+HLH % intonation and Korean *nun* marking. The commonness regarding contrastive topic marking that is shared by all of the above examples is the following: As represented in the diagrams in Figure 1 and 2, the contrastive topic pitch accent, B-accent, is licensed only when the discourse structure contains a residual topic as well as the B-accented topic, whether they are pre-established or accommodated. In other words, contrastive topic marking is legitimated only when the topic marked item is contrasted with some other possible topic candidates existing under the big question, d-topic. This is the discourse structure of contrastive topic in both Korean and English.

3. Conclusion

It is concluded that the information structure that can capture the meaning of contrastive topic is showing the following facts:

(i) Contrastive topic always **presupposes** a bigger questions, that is the d-topic according to Buering's terminology, which is represented by the root node in the provided diagrams. Providing a partial answer (only about *Fred* in (1b)) is a strategy to answer the bigger question under discussion. So, the *nun*-marked part in (1b) indicates the presuppositional information that there are more individuals in the discourse domain under consideration.

(ii) The presupposition that there exists a relevant bigger question can be either **explicitly** satisfied by the immediate question as in (1b), or **implicitly accommodated** so that the answer can be felicitous as in (2b). In (1b), the bigger question "who ate what?" is already given in the question (1a). Thus, the presuppositional information that the contrastive topic provides only a partial answer of the whole question is explicitly satisfied by the previous question. But, in (2), the question (2a) is only about *the beans*. Without any ongoing presupposition provided, (2b) is not only an answer for the given question (2a), but also its contrastive topic marking indicates the existence of other comestibles, e.g. *potatoes,* in the discourse domain by accommodating a presupposition of a bigger question like "who ate what?". And it serves as a partial answer for the bigger question. This presuppositional information suggests that *kong* 'beans' stands in contrasting relation with the other comestibles. In this sense, the presupposition is not explicitly satisfied by the previous question, but implicitly accommodated by the contrastive toic in the answer. In this case, the information structure assumed by the question (2a) and that of the answer (2b) are different. The accommodation procedure is what makes the dialogue of (2) felicitous by filling in the gap of the different presuppositional information of (2a) and (2b).

Endnotes
1. Earlier version of this paper is presented at 20th Penn Linguistics Colloquim in Feb. 1996. In writing the earlier version, I am indebted to Indiana University Semantics Reading Group, especially Prof. ter Meulen, Leslie Gabriel, and Robert Westmoreland, for their valuable comments.

2. The set of propositions, T (set of sets of worlds) is trivialized into a single set of worlds, UT .

2. This relevancy contstraint is explicitly represented as condition on Relevancy in Roberts (1996).

3.There is a way to save this response as a felicitous one. If *Mom* is associated with B-accent, it will become acceptable. This case belongs to the case which I will discuss in section 2.3.

References

Buering, Daniel. 1994. Topic. In Bosch & van der Sandt, eds., *Focus and Natural Language Processing* Volume 2: 271-280.

Carlson, Lauri. 1983. *Dialogue Games: An Approach to Discourse Analysis.* Reidel, Dordrecht.

von Fintel, Kai. 1994. *Restrictions on Quantifier Domains.* Doctoral dissertation, University of Massachusetts, Amherst.

Hoji, Hajime. 1985. *Logical Form Constraints and configurational structures in Japanese.* Doctoral dissertation, University of Washington, Seattle.

Krifka, Manfred. 1992. A compositional semantics for multiple focus constructions. *Linguistische Berichte Sonderheft 4.*

Partee, Barbara H. 1991. Topic, Focus, and Quantification. In Steven Moore & Adam Zachary Wyner, eds., *SALT.* Cornell University Working Papers in Linguistics 10.

Pierrehumbert, Janet. 1980. *The Phonology and Phonetics of English Intonation.* Doctoral dissertation, MIT, Cambridge, MA

Pierrehumbert, Janet & Julia Hirschberg. 1990. The meaning of intonation contour in the interpretation of discourse. In P. Cohen, J. Morgan & M. Pollack, eds., *Intentions in Communication: 271-312.*

Roberts, Craige. (1996c) Information Structure in Discourse: Rowards an Integrated Formal Theory of Pragmatics. Ms., The Ohio state University.

Rooth, Mats (1985) *Association with Focus.* Doctoral dissertation, University of Massachusetts, Amsterdam.

Rooth, Mats (1992) A theory of focus interpretation. *Natural Language Semantics*, 1 (1): 75-116.

Steedman, Mark (1991) Structure and Intonation. *Language* 67: 260-29.

Vallduvi, Enric (1992) *The informational Component.* Garlands Press, New York.