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Accommodated Theme

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1. Introduction

There is no overt morphological topic marking in English, but many people think that some kind fall-rise intonation pattern marks a kind of topic.² For example, in the prosody of the sentence *Fred ate the beans* in the discourse settings as in (1) (Jackendoff 1972, cited in Steedman 1994), the "what the utterance is about" part is marked by some kind of fall-rise intonation.

(1) (a) A: Well, what about the beans? Who ate THEM?

B: (Fred) (ate the BEANS).

L +H*LH%

(b) A: I know John ate potatoes. What did Fred eat?

B: (Fred ate) beans.

L+H*LH%

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 semantic function of this tune 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 (1a) and (1b) are translated as $\lambda x \text{ eat } 'x \text{ beans}'$ and $\lambda x \text{ eat } 'Fred' x$ respectively. From the **discoursal** point of view, this particular intonation marks the open proposition contrasted with the alternatives that are implicated by the previous discourse and/or context. In case of (1a), *the beans* are marked as standing in contrast to some other food.

However, there seems to be another kind of context where a similar kind of fall-rise intonation is involved. Consider (2), for example.

¹ I would like to thank Indiana University Semantics Reading Group, especially Prof. Alice Ter Meulen, Robert Westmoreland, and Leslie Gabriele, for their valuable comments on this paper. I am also grateful to Robert Westmoreland for his help on the editorial work. However, all the remaining errors are mine.

² The topic involved with the fall-rise intonation is contrastive topic only. But it has been already noted in the literature (Roberts 1996, Ward 1985) that topics, even when topicalized, are not necessarily contrastive. So, the notion of topichood in general is not clearly marked by any single means such as fall-rise intonation in English. Furthermore, some people (Roberts 1996) even doubt that there might not be such a universal function as *topic*. However, given the existence of the morphological topic marking language such as Korean and Japanese, I want to stick to the notion of topic, and assume that a unified discourse functional account is possible for topic marking. I hope the comparative analysis on the correspondence of the topic marking between Korean and English of the later part of this paper can give some clearer understanding on the notion of topic in general.

- (2) A: I know that John ate corn. But what about the beans? Did anybody eat the [beans]_T?
 B: [Fred]_F ate the [POTATOES]_T.
 L*+H LH%

Ward & Hirschberg (1985) intensively studied this particular intonation, where they claim that there is phonological difference between the rising intonation in (1) and that in (2). According to them, in the case of (2) the primarily stressed syllable is aligned with the L tone and the H tone occurs in the following syllable represented as L*+HLH%, whereas in (1) the primary stress occurs on the H tone represented as L+H*LH%. Unlike this, others (Steedman 1994, Buering 1994) are not sensitive to the phonetic and phonological difference in these two cases, but Steedman (1994) points out the discursive difference that seem to exist between these two cases. He briefly mentions two possible ways of licensing the theme tunes: One by **reference** and the other by **accommodation**. He claims that the normal way of theme marking by fall-rise intonation contour is by referring to an already established topic of conversation. However, in some cases these tunes can also be used to cause the hearer to add additional items to the discourse model by accommodation. And I believe the latter way of licensing theme tune is related to the rising intonation in (2). Steedman also suggests that this second way of theme marking is closely related to examples discussed by Ward & Hirschberg (1985). Whether there exists any phonetically discernible distinction between the fall-rise intonation in (1) and that in (2) in actual utterance or not is not my concern here. But it is my belief that there exists a crucial informational, semantic, and/or pragmatic difference between these two.

Steedman provides a framework that can nicely incorporate theme marking phenomena associated with fall-rise intonation based on combinatory categorial grammar in sentential level. Given that theme marking is essentially a discourse functional phenomenon, however, an analysis from the discursive point of view seems to be indispensable to understanding the discursive function of theme marking. Given this discourse functional importance of theme marking, and inspired by Steedman's idea for the two possible ways of licensing theme marking, *reference* and *accommodation*, I will provide a sketch of formalization of the discourse structure that could distinguish and account for the two kinds of theme marking in English. I will basically adopt and extend the formalism that Buering (1994) provided for the analysis of clause internal topic, which itself was an extension of Rooth's (1985) framework. In section 2, I will introduce Buering's formalism for treatment of theme marking and in section 3, I will provide a revised formalism that can accommodate the theme marking associated with the fall-rise intonation in (2). In section 4, I will briefly discuss the correspondence between English topic marking and Korean topic marking, which I believe can help us more deeply understand the topic marking phenomena of Korean and the notion of topic in general.

2. Discourse Topic (d-topic) vs. Sentence Topic (s-topic)

Buering (1994) claims that at any stage of a discourse there is a certain 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*, and the most straightforward way to establish a topic is to ask a question. In the discourse (3), the question is represented as a set of propositions, T, and it is trivialized into a single set of worlds, $\cup T$.

- (3) a. A: What did the pop stars wear?
 b. B: All the pop stars were wearing [caftans]_F.
 c. B: All the [female]_T pop stars were wearing [caftans]_F.

For the sake of the simplicity, if we assume that there are three popstars, namely X, Y, and Z, and that X, and Y are female, Z is male, and that there are two kinds of clothes, *caftans*, and *dresses*, the discourse topic T will be established as in (4):

- (4) T = {X was wearing caftans,
 Y was wearing caftans,
 Z was wearing caftans,
 X was wearing a dress,
 Y was wearing a dress,
 Z was wearing a dress.}

In (3b) the focused part 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 like (3b). The *focus semantic value* will be obtained by sticking in the alternatives for the focused part. That will be a set of the propositions. In order for a sentence *s* to be appropriate, the *focus semantic value* of *s* must be the same as the set of propositions representing the question. For example, the *focus semantic value* of (3b) must be (4) which is the same as the set of propositions for the question (3a). Thus, the response (3b) is an appropriate response to the question (3a).

Now, consider (3c). Given the fact that an answer is supposed to include all those true propositions within the given topic, B's answer in (3c) doesn't seem to be an appropriate answer, since it is not answering for the male pop star, Z. Then B's answer should be misleading.

However, it is acceptable as a felicitous answer with the rising intonation on *female pop star*. Buering refers to this rising intonation as *topic accent*, and I assume that this rising intonation is L*+HLH% intonation which is the same as those in (1). By this fact, we can see the function of the rising intonation. 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 like (3c), 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, *female pop stars vs. male pop stars* 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). Since we are assuming for the sake of simplicity that there are only two elements in [caftans]_F, namely *caftans* and *dresses*, we will get the **focus and topic semantic value** of (3c), [(3c)]^{ft} for short, as the following set of propositions in (5b).

- (5) a. [(3c)]^t = {all the female pop stars were wearing [caftans]_F,
 all the male pop stars were wearing [caftans]_F }
 b. [(3c)]^{ft} = {all the female pop stars were wearing caftans,
 all the female pop stars were wearing pink dresses,
 all the male pop stars were wearing caftans,
 all the male pop stars were wearing pink dresses}

According to Buring, the **s-topic** serves to narrow down the **d-topic** so that an exhaustive answer can be given. In case of (2B), the function of **s-topic** *female pop stars* is narrowing down the **d-topic** by replacing the original **d-topic** (4) by (6) below. Then, B's answer is providing the exhaustive answer for the **s-topic**.

- (6) **s-topic** of (3c) = {all the female pop stars were wearing [caftans]_F} = [(3c)]^f
 = {X wore a caftan, Y wore a caftan, X wore a dress, Y wore a dress}

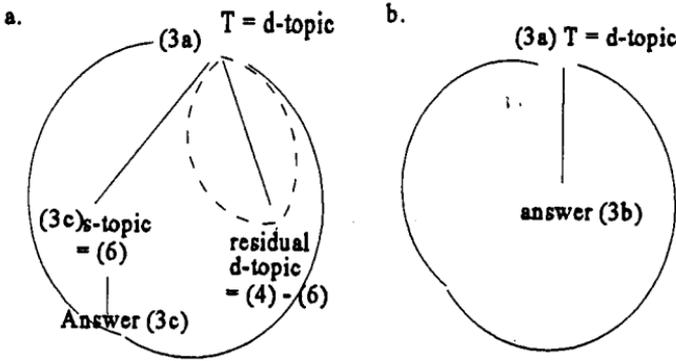
Note that the **s-topic** of (3c) is the same as its **focus semantic value**. And (5b) which is the **topic and focus semantic value** of (3c), i.e. [(3c)]^{tf}, is equivalent to (4), which is the **d-topic** T established by the question (3a).

Given that, Buring formulated felicity condition of discourse that can accommodate both (3b) and (3c) as in (7):

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

In the case of (3c), [(3c)]^{tf} is (5b) and it is the same as the **d-topic**, (4), of discourse (3). And in (6) (= [(3c)]^f), since the propositions 'X wore a caftan' and 'Y wore a caftan' are the exhaustive true propositions, [(3c)]^o is appropriate response to [(3c)]^f (= 6). Therefore (3c) is an appropriate answer for the question (3a).

Let us more closely examine the mechanism of the process of narrowing down the **d-topic** into **s-topic**. The constraint (7a) checks if the **s-topic** is one of the propositions of the set, **d-topic**. Since we know that the alternatives to the **s-topic** and the alternatives to the focus of (3c) are the same as the **d-topic** T established by the question (3a), (3c) obeys the constraint (7a). Therefore, the actually uttered sentence must be 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 the *male pop stars* in this particular example. This excluded propositions are called **residual d-topic** by Buring. So, (3c) is the exhaustive list of the true propositions from the set consisting of the propositions about the female pop stars only. This process seems to fit our intuitive processing of the topic marked sentences. This process of narrowing down the topic into a **s-topic** is graphically represented in Figure (1a).



where $T = (4)$

Figure 1

Another 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. If all the *pop stars* were wearing caftans, you could simply answer with the **d-topic** itself without giving the **d-topic** into several **s-topics**. And that's exactly what is represented in the Figure 1(b). But, when one does not want to, or cannot answer directly about the **d-topic**, one can narrow down the **d-topic** into **s-topics** and take one of them and answer about it. 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**, $[(3c)]^f$ serves as the **d-topic** for $[(3c)]^o$ -- the normal semantic value of (3c). This is the constraining mechanism for topic marking as in (3c). Buering's mechanism seems to work well for the discourse (3) in this way. In the next section, however, I will consider the other case of topic marking such as the fall-rise intonation in (2) which does not obey the constraints in (7).

3. Theme marking by accommodation

Consider (8) which is similar to (2):

- (8) A: Who ate what? I know that John ate the corn. But what about the beans?
 B: [Fred]_F ate the [POTATOES]_T.
 L*+H LH%

Let us suppose that there are three people, namely, *John*, *Fred*, and *Jack*, and there are three things to eat, namely, *corn*, *beans*, and *potatoes*. The ordinary semantic value of the last question in (8A), which is a set of potential answers including both true and false propositions, is like (9). Accordingly, this serves as the **d-topic**, T, for (8B).

- (9) T = {John ate the beans, Fred ate the beans, Jack ate the beans}

The **topic and focus semantic value** of (8B), [(8B)]^{tf}, however, will be like (10);

- (10) [(8B)]^{tf} = { John ate the potatoes, Fred ate the potatoes, Jack ate the potatoes,
 John ate the corn, Fred ate the corn, Jack ate the corn,
 John ate the beans, Fred ate the beans, Jack ate the beans }.³

According to (7a), the given topic T, which is (9) in this case, should be the same as the [(8B)]^{tf} which is (10). But, they are not. So, (8B) should not be an appropriate discourse according to (7). However, it is a felicitous response to the question (8A), and there are lot of examples of this kind of topic marking. I believe that all the examples provided in Ward & Hirschberg (1985) that they claim as implicating uncertainty belong to this special kind of topic marking.⁴

In summary, the case of (8B) is different from the case of (3c) in that; 1) the former does not obey the constraint (7) while the latter does, and 2) the former is normally associated with a different pitch accent from the latter if the authors of the previously mentioned literature are right. Therefore, this kind of topic marking needs a special treatment.

Let us first examine the pragmatic condition where this special kind of topic marking is possible. Apparently, the utterance (8B) is not answering the last question of (8A), *what about potatoes?* The function of the utterance (8B) seems to be undoing the

³ Since there can be case where one person eats more than one thing, this set must consist of power sets consisting of all three foods for each person. That is, for example, for *John*, the corresponding food must be all possible logical combination of the three food, *potatoes*, *beans*, *corn*. But, for the simplicity again, I will assume that each person eats only one thing here.

⁴ Ward & Hirschberg claim that a speaker's perception of some scale is a necessary condition for this intonation, but the primary function of this intonation is to convey uncertainty about the speaker's use of this perceived scale. However, I believe that bringing up a scale and having a meaning due to scalar implicature is the more primary function of this intonation as theme marking. In fact, the interpretation of contrastiveness of the normal case of topic marking as in (1) is also due to scalar implicature. So, viewing the fall-rise intonation of (2) as topic marking is reasonable in that both convey the interpretation of scalar implicature. This interpretation due to scalar implicature of fall-rise intonation as topic marking in general is related with the fact that both cases of fall-rise intonation correspond to Korean morphological topic marker *nun*. In my earlier paper, Wee (1995), I showed that the contrastive interpretation of topic marked constructions in Korean is due to scalar implicature. The fact that certain fall-rise intonation has interpretation related with scalar implicature in English is also noted in Rooth (1992).

process of topic narrowing performed by the last question (8A). (8A) narrows down the original **d-topic** about *corns*, *potatoes*, and *beans* into one only about *beans*. But, answer (8B) goes back to the original **d-topic** and provides the relevant answer for the original **d-topic**, established by the first question of (8A), without answering the current **d-topic** proposed by the second question of (8A). This fact can be shown also by the fact that the original **d-topic** is the same as the **topic and focus semantic value** of the answer (8b), i.e. [(8B)]^{tf} given in (10). The speaker's pragmatic reason for doing this in (8B) will vary, including two obvious cases where the speaker does not know the answer for (8A) or does not want to answer directly. In the case when the speaker deliberately avoids providing a direct answer for the question, the actual answer implicates that the answer for the original question will be negative.

One notable fact related with this kind of topic marking is that it is also possible even when no larger **d-topic** has existed in the preceding discourse. This special kind of topic marking strategy can induce the hearer to reconstruct the **d-topic** by *accommodation*. For example, consider the example (11) which originated from Ward & Hirschberg (1985):

- (11) A: Do you have jello?
B: We have [pie]_f.

In this discourse, the ordinary semantic values of the question (11A) will be a set of two propositions that would be potential answers, that is {you have jello, you don't have jello}. Thus, the proper answer for this question would be picking up one member of the set. But, the answer (11B) is not a member of the set. What the fall-rise intonation does as the topic marker in (11B) is to reconstruct a larger **d-topic** consisting of a set of propositions containing (11B) 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 (12):

- (12) {you (don't) have jello,
You (don't) have icecream,
You (don't) have pie,
you (don't) have cake,...}

Given this **d-topic**, (11B) is narrowing down this **d-topic** into an **s-topic** which should look like the following (13):

- (13) {we have pie, we don't have pie}

If we verbalize the pragmatic implication associated with (11B), it will be something like this: "if the topic is 'pie' instead of what you asked about, we do have it. But, we are not in a situation in which we 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't have it but don't want to directly say it in order to be polite.

In summary, the function of the fall-rise intonation in (8) or (11) is 1) to reconstruct the discourse structure, 2) to invite the hearer to accommodate the newly suggested structure and 3) and then based on that newly accommodated structure, to give an appropriate answer. Thus, the seeming violation of the constraints (7) by this topic marking can 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 (14):

- (14) A sentence s can be appropriately uttered given a topic T iff
- Either i) $\cup[s]^f = \cup T$
or ii) $\cup[s]^f = \cup T'$ such that $([s]^f \cup T) \subseteq T'$
and
 - $[s]^o$ is an appropriate utterance to $[s]^f$.

(14) 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**. The difference of the topic marking in (3c) and (11) is that in (3c) the topic marked sentence is a member of the already established topic T whereas that of (11) is a member of a newly accommodated topic T' which is larger than the original topic set up by the previous question. This different way of processing the topic marking can be visualized as in Figure 2.

As we see in Figure 2, to process the utterance (11B), the original **d-topic** established by the question (11A) is canceled and subordinated under the newly accommodated **d-topic**, T' , which will contain the original T given by (11A) and the newly accommodated **s-topic** (11B), converting itself into the **residual d-topic**, T . With this reconstruction of the discourse structure, the topic marking as in (11B) can be legitimized. And those cases that require discourse restructuring seem to belong to the fall-rise intonation that is claimed to be $L^*+HLH\%$ by Ward & Hirschberg.

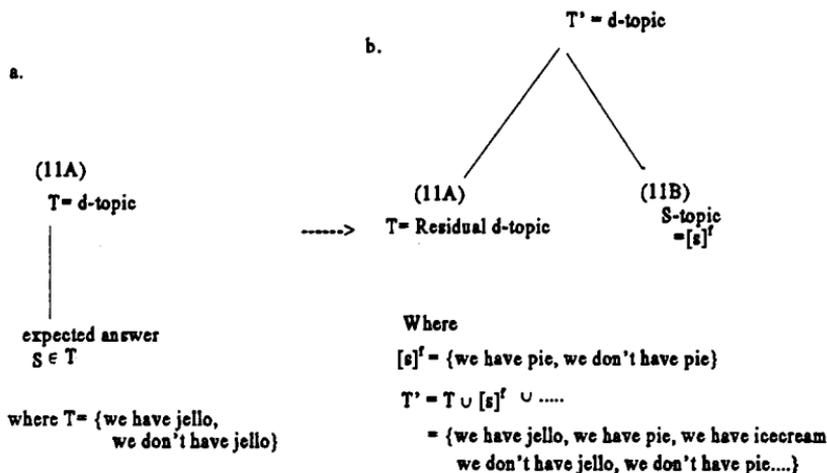


Figure 2

4. Correspondence between English topic marking and Korean topic marking.

So far, we have seen two kinds of topic marking in English. They are the only cases where the topic is marked by intonation. However, there seems to be another kind of construction in which the notion of **d-topic** could be involved. Note that even in the case where an answer is given directly to the original question as in (3a), represented as Figure (1b), the **d-topic** is established by the question. If we directly answer (15B) for the same question as (3a), we do not need the topic intonation in English.

- (15) A: What did the pop stars wear?
B: The pop stars/ They wore dresses.
- (16) A: ku kasu-tul -I muel ip -ess-ni?
the singer pl. subj. what wear past Q
"What did the singers wear?"
- B: Ku kasu- tul(-un) tures ip -ess -e.
the singer pl TOP dress wear past DEC.
"The pop singers wore dresses."

However, as we see in figure 2, the question already establishes the **d-topic** whether it is answered by the utterance like (3b) or (11B). We need topic intonation only for (11B), but not for (3b). In other words, English topic intonation marks the so-called contrastive topic only. However, in Korean the construction like (11B) can have morphological topic marking for *pop stars*, i.e. (*nun*), optionally as shown in (16). In English, topic marking is associated with topic intonation only when the original topic is narrowed down from the larger **d-topic**, standing in contrasting relation with the **residual d-topic**, whereas in Korean, topic marking can be associated with the theme part both for **d-topic** and **s-topic**. Thus, topic marking in Korean can appear whenever a **d-topic** is constructed, whereas in English, topic marking can appear only when some notion of contrastiveness is involved for theme, i.e. only when there exists a **residual d-topic**.⁵

One more interesting fact about Korean topic marking is that even when the question is not overtly given, a **d-topic** can be constructed by accommodation with the topic *nun*-marked construction beginning a new discourse, and then the same topic marked construction can be repeated later on. This is exemplified in the narrative discourse (17).

- (17) a. Onul Jane-nun ilcik ilena -ss -ta.
today Jane TOP early get up PAST DEC.
"Today, Jane got up early."
- b. Kunyo-nun kipun -I sangkwehay-ss -ta.
She TOP feeling SUBJ be pleasant PAST DEC
"She felt good."

⁵ The morphological topic marking construction in Korean for a d-topic seems to correspond to the *null theme* in English that is claimed by Steedman (1994) as a theme that is associated with deaccented prosody, which is, however, analyzed as the same procedural categorial grammatical structure as the contrastive topic marked by fall-rise intonation. But, I believe all these three kinds of topic are the same only in sentential level information structure; but in discourse structure all these three are distinguishable.

- c. kulayse kunye-nun hakkyo -e kele kakilo hay-ssta.
 So she TOP school LOC by walking to go decided
 "So, she decided to walk to school."

In the beginning of this discourse, Jane is marked with the topic marker *nun*. In this case, even though the **d-topic** has not been overtly brought up previously, one can just accommodate *Jane* as the **d-topic** for the first sentence in Korean. This legitimizes the *nun*-marking in the beginning. Then, the same topic can be selected again, as in (17b, c).

In English, the overt topic marking due to intonation is required only when contrastiveness is involved, whereas in Korean, there are four possible pragmatic situations that can be responsible for topic *nun* marking⁶. Two cases correspond to English fall-rise intonation constructions such as *beans* in (1a) and *potatoes* in (2B). The Korean translations of (1a) and (2) are provided in (18) and (19) respectively.

- (18) khong-un Fred-ka mek-ess -e
 Beans TOP Fred SUBJ eat -PAST DEC
 "Fred ate the [beans]_T" (= 1a)
- (19) kamja-nun Fred-ka Mek-ess -e
 Potato TOP Fred SUBJ eat PAST DEC
 "Fred ate the [potatoes]_T" (= 2B)

The third case of topic marking in Korean corresponds to the case as *the singers* in (15B) or (16B), and the fourth case is the topic marking for *Jane* in (17a). By this, we can see both difference and similarities in the strategies used in English and Korean to organize a discourse.

5. Conclusion

I have formalized two possible discourse constructions that license topic intonation in English. This formalism shows how different discourse strategies, namely **reference** and **accommodation**, can be used for each of the two discourse structures. Additionally, this analysis can help us understand the correspondence between English topic marking and Korean topic marking, and can help us better understand morphological topic marking itself which has long been a controversial and puzzling phenomenon in the languages like Korean or Japanese.

References

- Buering, Daniel. 1994. "Topic," in P. Bosch & V. D. Sandt, eds., *Focus and Natural Language Processing*, eds., Vol 2:271-280.
- Jackendoff, Ray 1972. *Semantic Interpretation in Generative Grammar*, MIT Press, Cambridge MA.
- Roberts, Craige 1996. "Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics." Manuscript, Ohio State University.
- Pierrehumbert, Janet 1980. *The Phonology and Phonetics of English intonation*. Ph.D.

⁶ There can be other means to mark noncontrastive topicality in English such as preposing as was shown in Ward (1985) and pointed out again in Roberts (1996)

- dissertation, MIT, Cambridge, MA.
- Pierrehumbert, Janet & Julia Hirschberg. 1990. "The meaning of intonation contours in the interpretation of discourse." in P. Cohen, J. Morgan & M. Pollack, eds., *Intentions in Communication*, 271-312.
- Rooth, Mats 1985. *Association with focus*. Ph. D. dissertation. University of Massachusetts, Amherst.
- Rooth, Mats 1992. "A Theory of Focus Interpretation." *Natural Language Semantics* 1:75-116.
- Steedman, Mark 1991. "Structure and Intonation." *Language* 67:260-296.
- Steedman, Mark 1994. "The Grammar of Intonation and Focus." Manuscript, University of Pennsylvania.
- Ward, Gregory 1985. *The Semantics and Pragmatics of Prosody*. Ph.D dissertation, University of Pennsylvania.
- Ward, Gregory & Julia Hirschberg 1985. "Implicating Uncertainty: the Pragmatics of Fall-Rise Intonation." *Language* 61: 747-776.
- Wee, Hae-Kyung. 1995. "Meaning and Intonation Associated with the Subject Marker and Topic Marker in Korean." in *Proceedings of Harvard Studies in Korean Linguistics* 6.