Inversion in the Centering Framework

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Yoon-kyoung Joh. 2013. Inversion in the Centering Framework. *Language and Information 17.1*, 17–32.   Birner (1998) analyzes the construction of inversion within the centering theory, claiming that the preposed constituent in the inversion structure represents the backward-looking center that connects the current utterance to the previous discourse. However, this paper refutes such a strong claim, pointing out various problems of her work. Instead, this paper argues that the preposed element in the inversion construction is merely the preferred center under the condition that the ranking of the forward-looking centers is determined by the surface word order, rather than by grammatical relations. Thus, this paper claims that the discourse function of the construction of inversion is not text development but merely prominence-giving, in the sense of Ilić (1998).   (**Mokpo National University**)

Key words: inversion, discourse familiarity, centering, backward-looking center, preferred center, forward-looking center

1. Introduction

Birner (1994, 1996) find a felicity condition of the inversion construction in terms of discourse familarity. That is, the construction of inversion is felicitous when the preposed constituent must not represent less familiar information than does the postposed constituent. Developing this study, Birner (1998) further claims that, in a felicitous inversion, discourse-old information precedes discourse-new information and, at the same time, the more recently evoked element precedes less recently evoked element. To unify the two seemingly different conditions, she assumes that more recently evoked element is considered as more discourse-familiar than less recently evoked element. On the basis of this assumption, Birner (1998) argues that the preposed element can be taken as representing the connection between the inversion and the prior discourse, suggesting that the preposed constituent in an inversion is defined as the backward-looking center of the utterance.

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However, this paper points out problems of such a strong claim in four aspects. First, not a few counter-examples to the condition she proposed are observed. Second, she must treat inferrrable elements as familiar as explicitly evoked constituents. Third, she needs to make a stipulation to the centering theory to the effect that the forward-looking center list must include discourse entities not only in that utterance but also in the previous discourse. This stipulation is not a small change but shakes up the entire framework of the centering theory, necessitating correspondingly significant justifications. Last but not least, such a strong claim made by Birner (1998) cannot handle the cases where both the preposed element and the postposed element are discourse-new, as shown in the below.

(1)   At nearly every angle that a camera might catch there were banners featuring checkered flags and race cars encircled by the words 'National Association of Record Breakers." Less abundant but equally prominent were banners proclaiming 'Powered by Energizer.'

(2)   I had lunch at Marshall Field's yesterday and you wouldn't believe who was there. Behind a cluster of microphones was Mike Ditka, holding yet another press conference.

According to Birner (1996), in 141 cases out of 1290 instances, the preposed element and the postposed element are both found to be discourse-new. However, defining the preposed element as the backward-looking center cannot handle such cases as (1) and (2). Thus, I would like to propose that the preposed element in the inversion structure is merely the preferred center, not the backward-looking center, suggesting that the primary discourse function of the inversion construction is not text development but merely pointing out the prominent element at the current utterance.

The organization of this paper is as follows. First, in section 2, I briefly discuss the inversion construction as an independent construction that has its own distinguishing characteristics and introduce Birner (1994, 1996) that nicely put forth a discourse condition of the inversion construction. Section 3 sketchily reviews the centering theory and how Birner (1998) analyzes the construction of inversion under the centering algorithm. Section 4 finds problems of Birner (1998) and makes a new proposal. Section 5 finally concludes this paper.

2. Construction of Inversion

The aim of this section is to discuss what the inversion is and whether the inversion structure can constitute an independent construction that has its own distinguishing features. To illustrate them, first of all, I borrow examples from previous studies. The examples from (3) to (7) are from Kim (2000) and Birner (1996) and they display that inversion is possible with respect to AdvP, PP, VP, AdjP and DP.

(3)   AdvP-inversion:

     a. <u>Now and then</u> could be seen southward through the scrub the vista of the great plain parallel to which the tracks were running on and on before Bony.

     b. <u>Now</u> is the time for the first of these omissions to be rectified.

(4) PP-inversion:

     a. <u>Among the loudest advocates of regulation</u> are members of the airline unions, who hope that this will preserve their high paid jobs.

     b. <u>Of equal importance</u> are the forces of erosion that have shaped it and continue to shape it today mainly running water from rain, ...

(5) VP-inversion:

     a. You won't believe what I saw yesterday when I was walking past the park. <u>Sitting and talking with an elderly man</u> was your little brother. I think they were feeding the squirrels.

     b. <u>Gone</u> are the days when Europe's monopoly carries would fix prices and pool revenue on high traffic routes.

(6) AdjP-inversion:

     a. <u>More impressive to me</u> was Tom Conti in the thankless role of Mr. Lawrence, the audience's alter ego.

     b. Some of them are very beautiful, but <u>most important</u> are their fascinating detail and accuracy.

(7) DP-inversion:

     a. <u>One of the people killed</u> was Filimon Delgadillo, the mayoral candidate of Belaude's party, Popular action, in Huamanguillo.

     b. <u>An exception to this rule</u> are the wealthy merchants, Ministers, and senior Government officials who have interested in cattle.

Scrutinizing examples like the ones illustrated above, Birner (1994, 1996) define the inversion structure as in (8).

(8) An INVERSION is a sentence in which the logical subject appears in a post-verbal position while some other, canonically post-verbal, constituent appears in clause-initial position.

    Now, we understand what the inversion structure is. Then, let us move on to the question whether the inversion structure is indeed an independent construction that has its own distinguishing features. Chen (2003) identifies several peculiar features of inversion that are not found in other similar constructions. First, the inversion structure displays a so-called polarity constraint. In terms of this constraint, inversion does not permit its verb to be negated, as shown in (9).

(9) *On my left was not Tom Lopez.

The second crucial feature of the inversion construction is that inversion reveals a transitivity constraint. As is well-known, simple-tense transitive verbs cannot appear in the inversion construction, as shown in (10).

(10)   *Through the revolving door pushed Tom Lopez Mary Davis.

Chen (2003) points out another syntactic constraint of the inversion construction: the auxiliary constraint. This restriction is about the question whether the verb in the inversion construction can take complex auxiliaries, as illustrated in (11).

(11)   *On my left could have sat Lopez.

Chen (2003) further notes that, in addition to the syntactic constraints illustrated above, the inversion construction is associated with restrictions which are more or less semantic. As shown in the following examples, the inversion construction is sensitive to what is preposed and what verb is used as the predicate. As illustrated in (12) and (13), the preposed elements are semantically restricted. Furthermore, as shown in (14) and (15), the verbs in the inversion construction are also semantically constrained.

(12)   a. *With enthusiasm went Tom Lopez.
        b. With Mary Davis went Tom Lopez.

(13)   a. *Into music went Tom Lopez.
        b. Into the room went Tom Lopez.

(14)   a. *At an old desk wrote Tom Lopez.
        b. At the desk sat Tom Lopez.

(15)   a. *In the room screamed Tom Lopez.
        b. In the room was Tom Lopez.

Now, we have a clear idea about what the inversion structure is and have come to know that the inversion structure is a distinctive construction that should be studied independently. In fact, there have been many studies on the inversion structure. In the following, let me introduce a series of researches conducted by Birner. In her corpus study, Birner (1994, 1996) find that there is a significant interaction between discourse-familiarity and inversion. Birner (1996) summarizes her study as in (16).

(16)   Discourse-Familiarity in Inversion

Initial Element → Final Element ↓	Discourse-Old	Discourse-New	Total
Discourse-Old	138	3	141
Discourse-New	1008	141	1149
Total	1146	144	1290

Based on the statistics in (16), Birner (1996: 90) proposes the discourse condition of the inversion construction as in (17). The majority of the inversion construction, in fact, shows us that the preposed element is more familiar than the postposed element. However, this strong condition would fail to account for the 279 instances where the preposed and postposed constituents are of equal discourse-familiarity. Thus, Birner (1996) generalizes the condition in a less strong way as in (17).

(17)   Discourse Condition of Inversion
       The preposed element in an inversion must not be newer in the discourse
       than the postposed element.

3. Centering Approach towards Inversion

This section will briefly introduce the centering theory and review how Birner (1998) has attempted to account for the inversion construction under the centering framework. Birner (1998) claims that discourse-oldness cannot be a gradient notion. However, she finds that we need a gradient notion to explain the inversion construction. Looking for the framework that can provide us the familiarity continuum among discourse entities, she resorts to the centering theory that features varying degrees of salience as one of the main organizing principles. Before discussing the claim of Birner (1998) that is based on the centering theory, let us first look at the centering theory.

The centering theory mainly concerns discourse centers defined as semantic entities in each individual utterance of a discourse segment boundary. Therefore, as is well known, the most integral elements of the centering theory is the three types of centers: forward-looking centers (henceforth, Cfs), preferred centers (henceforth, Cps), and backward-looking centers (henceforth, Cbs). Cfs represent entities evoked by an utterance in a particular discourse segment. All the entities in a given utterance are listed as the Cf of the utterance. Furthermore, some implicit arguments are also allowed to be represented in the Cf list. The Cp is the highest-ranked discourse entity among Cfs. The Cb is regarded as the most special discourse entity in the Cf list because it stands for the entity that the utterance mainly concerns about. Therefore, the Cb in the centering theory is treated as a discourse topic that can be established in one of the most algorithmic ways. The Cb is defined as the highest-ranked discourse entity of the Cf list of the previous utterance that is realized in the current utterance. With regard to the three types of centers, Walker, Joshi, and Prince (1998) put forth three constraints in (18).

(18)   Constraints: For each utterance U_i in a discourse segment D consisting of
       utterances U_1, ..., U_m:

       1.   There is precisely one backward-looking center Cb (U_i, D).
       2.   Every element of the forward centers list, Cf (U_i, D), must be realized
            in U.
       3.   The center, Cb (U_i, D), is the highest-ranked element of Cf (U_{i-1}, D)
            that is realized in U_i.

The first constraint concerns the Cb and it regulates that there is only one central discourse entity that the utterance talks about. There are not a few ways to interpret the second constraint and the variation comes from how to characterize the relation *realize*. Grosz, Joshi, and Weinstein (1986) define the *realize* relation as in (19).

(19)   An utterance U realizes a center c if c is an element of the situation described by U, or c is the semantic interpretation of some subpart of U.

According to this definition, both pronouns and zero pronouns can be included in the Cf list. That is, not only explicitly realized centers but also implicitly realized centers can be part of the Cf list in theory. This potentially enables us to incorporate discourse entities which are inferrable from the discourse surrounding in the Cf list. Therefore, the Cfs can be regarded as a very flexible set of discourse centers.

The third constraint in (18) makes the ranking of the forward-looking centers of the previous utterance significant in choosing the backward-looking center that the current utterance primarily concerns about. If a Cp is realized in the next utterance, it is automatically defined to be the Cb of that utterance. Therefore, the role of the Cf ranking is very crucial in the centering theory. Different languages have been argued to have different criteria for the Cf ranking and the studies on the determining factors for the Cf ranking are still ongoing. As the most common practice, the grammatical role has provided the standard view point for the Cf ranking. However, not a few researches found that many languages are affected by the surface word order, the information status, or the thematic roles of the entities in the Cf list. Thus, in the centering theoretic analyses, one of the critical factors that needs to be predetermined is the Cf ranking of the language that is analyzed. In the main section of this paper, I will claim that the surface word order must be the factor that determines the order of Cfs.

The centering theory also employs two rules in (20). Regarding the two rules in (20) as well as the constraints in (18), we need to pay attention to the fact that they are defined within the discourse segment D since the centering theory is looking for the local structure of the discourse, in addition to the global structure of the discourse. Whether the discourse has the local structure or the global structure is an open issue since many researchers are still providing different evidence for them. Yet, the centering theory has originally been designed to represent the local structure of the discourse since all the rules and constraints are defined within a discourse segment.

(20)   Rules: For each U in a discourse segment D consisting of utterances U_1, ..., U_m:

1.   If some element of Cf (U, D) is realized as a pronoun in U, then so is Cb (U, D).
2.   Transition states are ordered. The CONTINUE transition is preferred to the RETAIN transition, which is preferred to the SMOOTH-SHIFT transition, which is preferred to the ROUGH-SHIFT transition.

The second rule in (20) specifically distinguishes four transition statuses in the centering theory and each of them can be characterized as in (21). The four transition types — CONTINUE, RETAIN, SMOOTH-SHIFT, and ROUGH-SHIFT — can help us to calculate and estimate the coherence of the discourse segment in which a set of utterances occurs.

(21)   Centering Transition States

	Cb (U_i) = Cb (U_{i-1}) or Cb (Ui-1) = [?]	Cb (U_i) ≠ Cb (U_{i-1})
Cb (U_i) = Cp (U_i)	CONTINUE	SMOOTH-SHIFT
Cb (U_i) ≠ Cp (U_i)	RETAIN	ROUGH-SHIFT

As shown in (21), in characterizing the four transition types in the centering theory, two centers play a significant role. On the one hand, the Cb of the previous discourse and the Cb of the current discourse must be identified. On the other hand, the Cb of the current utterance and the Cp of the current utterance must precisely be calculated in order to define a transition type of an utterance. In sum, the Cb and the Cp are the two crucial elements in the centering theory and, to define them, the Cfs must significantly be dealt with.

Out of the three important centers in the centering theory, Birner (1998) claims that the preposed element in the inversion construction can be defined as the Cb that plays the role of connecting the current utterance to the previous discourse. Her reasoning is as follows. The data in (22) and (23) show us that the discourse condition on inversion provided by Birner (1996) seems to work.

(22)   We have complimentary soft drinks, coffee, Sanka, tea and milk. Also complimentary is red and white wine. We have cocktails available for $2.00.

(23)   Such corporate voyeurism enables corporations to tailor advertising messages to specific individuals on a mass scale. For example, 'What's Hot,' a magazine published by General Foods for children aged 4 to 14, is sent to households that are known to be responsive to ad promotions. The 'message from the sponsor' is subtle, with brand names worked into activities such as games and quizzes. Accompanying the magazine are cents-off coupons.

However, examples like (24) and (25) show us that it would be desirable to have varying degrees of discourse familiarity rather than simply making a distinction between discourse-oldness and discourse-newness. In the following examples, both the preposed constituent and the postposed constituent represent discourse-old information. However, a systematic pattern is found that the preposed constituent is more recently mentioned than the postposed constituent. Birner (1998) claims that the binary given-new distinction would not be able to explain such examples as (24) and (25) properly.

(24)   Yes, this is no ordinary general election. 'Evans is a Democrat; Daley is a Democrat. Different Democrats have different points of view about the city of Chicago and its politics, Jackson noted. 'The war between forces within the party continues, and within our coalition.' Standing in the middle of it all is Jesse Jackson.

(25)   Tich made tea in a blackened billy and McPherson filled a telescopic cup
        he took from a pocket. Seated on a form, he helped himself to sugar and
        then proceeded to cut chips from a tobacco plug, the cold and empty pipe
        dangling from his lips against the full grey moustache. Seated opposite him
        was Tich, waiting for gossip, wondering, hoping.

Birner (1998) discusses cases like (26) where a single phrase evokes the pre-
posed constituent and the postposed constituent. In (26), *Montagnier and Barre,*
whose English was more fluent than Chermann's is the phrase that evokes both
the preposed constituent and the postposed constituent. In these instances, both
constituents are discourse-old but one is hard to be said to be more recently men-
tioned than the other. However, Birner (1998) claims that, even in the case like
this, it is observed that the information conveyed by the postposed element seems
to be a proper subset of the information conveyed by the preposed element. Thus,
Birner (1998) claims that, when the same constituent evokes both preposed and
postposed entities, the larger unit is regarded as more familiar in the discourse
than the proper part.

(26)   Over a weekend, Montagnier and Barre, whose English was more fluent than
        Chermann's, hammered out a manuscript reporting the isolation of their
        new retrovirus from Frederic Brugière, who would henceforth be known
        in the scientific literature as BRU. Listed first among the authors, the
        position traditionally reserved for the researcher who has made the greatest
        contribution to the work, was Françoise Barre.

The examples in (24), (25) and (26) all show us that we need varying degrees
of discourse familiarity and the centering theory represents them in an algorithmic
way. Thus, Birner (1998) claims that the inversion structure needs to be analyzed
within the centering theory and her conclusion is that the preposed element in the
inversion construction is the Cb which serves as the link between the inversion and
the prior discourse.

4. Proposal

The previous section has briefly introduced Birner's (1998) centering-theoretic anal-
ysis for inversion. However, this section will start with the problems of her work.
First of all, as Birner (1998) herself notes, there are cases where the opposite con-
dition to her study is observed. Birner (1998) makes a generalization that, when
two constituents of inversion are both discourse-old, a gradient notion of discourse
familiarity works and the more recently mentioned element comes before the less
recently mentioned element. However, the examples in (27) and (28) show us that
it is not always the case. In (27), the noun phrase *the bottle* in the postposed phrase
was more recently mentioned than the adverbial *down* in the preposed phrase. In
(28), the referent of the pronoun *them* in the preposed phrase has been mentioned
less recently than the referent of the noun phrase *lighted building* in the postposed
phrase. As Birner (1998) herself admits, these examples reveal that her observation
on the recency effect of inversion is not general enough.

(27) The earth was friable. He scooped a small and deep hole straight down
      so that the bottle would not lie longwise with the danger of its precious
      contents seeping out from the glass-stoppered cork. Down went the bottle
      into the hole.

(28) Visiting hours were over and a collection of parents, wives, and husbands
      had begun to descend the steps in front of the hospital and spread out in
      the shadow parking lot. Behind them loomed the lighted building, dingy
      and familiar.

Birner (1998) even mentions that the inversion structure in the revised dis-
course provided in (29) is also felicitous. In (29), the postposed element is discourse-
old while the preposed element is discourse-new with the latter not being mentioned
in the previous discourse this time. This is apparently inconsistent with Birner's
(1996) discourse condition on the inversion structure. The example in (29) thus
evidently shows us that Birner's (1998) claim that the preposed constituent in the
inversion structure can be defined as the Cb in the discourse is hard to be accepted.

(29) The earth was friable. He scooped a small and deep hole so that the bottle
      would not lie longwise with the danger of its precious contents seeping out
      from the glass-stopped cork. Down went the bottle into the hole.

Second, in the inversion structure in (30), the postposed constituent *Nusseibeh*
is discourse-old since it was directly evoked in the previous discourse. However, the
preposed phrase *most immediately affected* was not directly evoked in the previous
discourse. In this case, Birner (1998) claims that the preposed phrase is the infer-
able information in the respect that one can assume that the situation described
in (30) will have an effect. Treating the preposed constituent as inferable in its
discourse status, Birner (1998) further claims that inferable information is more
familiar or at least as familiar as the evoked information. Only with this stipula-
tion, the example in (30) does not constitute a counter-example to her study.

(30) Nusseibeh's unusual predicament causes concern all around. His friends fear
      that Arab hard-liners will turn on Nusseibeh, thinking he is an Israeli ally.
      The Israelis, who certainly want to squelch the 17-month-old uprising in
      the West Bank and Gaza Strip, are under intense pressure from the United
      States not to jail moderates who may figure in their election proposal for
      the territories occupied since the 1967 war. Most immediately affected is
      Nusseibeh himself.

Birner (1998) provides statistics where we need to use the discourse familiarity
status of being inferable as in (31). Especially, the 26 tokens in which the preposed
constituent is inferable while the postposed constituent is evoked force us to treat
the inferable status as equally as the evoked status.

(31) a. inferable-evoked: 26 tokens
      b. evoked-evoked: 29 tokens
      c. inferable-inferable: 41 tokens

    d. evoked-inferable: 42 tokens

However, even with the stipulation, Birner (1998) cannot explain all the cases using the status of being inferable since, in (32), the information that licenses the inference violates the recency effect of discourse familiarity. As Birner (1998) herself notes, in (32), the mention of *a rare concession* that helps us to infer the preposed phrase *astonishing* occurs less recently than the quotation, which licenses the inference to the postposed constituent that states that something came next. In a word, even with the stipulation that inferrable information is equally familiar as evoked information, there are some circumstances where her claim does not hold true.

(32)   Caught off balance by mounting anger over its butterfingered handling of the affair, the government finally relented. The announcement of rationing, it said in a rare concession of fault, 'testified to a lack of sufficient sensitivity to the public reception.' More astonishing was what came next in the official communiqué: 'The government apologizes to citizens, especially to women, for the trouble and anxiety.'

Third, Birner's (1998) claim that the preposed constituent in the inversion construction represents the Cb in the centering theory makes us have another big stipulation on the centering theory. Looking at the examples like (33) where the preposed constituent was evoked not in the immediately preceding utterance but farther back in the previous discourse, Birner (1998) needs to permit that a Cf list can include not only discourse entities in the utterance itself but also a wider range of entities that are salient in the discourse. To be specific, in (33), the preposed constituent *the desk* should be the Cb of the inversion. However, it is not mentioned in the immediately preceding utterance but three utterances back. To make *the desk* the Cb of the discourse, the Cf list of the previous utterance must include the discourse entity *the desk*. However, this kind of extreme liberation on the theory will diminish the algorithm that the theory has originally been designed to capture.

(33)   They took her to a police station, where she was led in front of a well-dressed man seated behind a desk. His boots shone. Behind him hung a portrait of Hitler. On the desk was a whip. Other people were in the room.

Fourth, the most critical problem of Birner (1998) is found in cases where both the preposed and postposed constituents are considered to be discourse-new, as shown in (34) and (35). This kind of situation cannot be handled even with the stipulation made above. Let's assume that we might be able to include entities that are not realized in the utterance if they are previously mentioned and still salient in the discourse. However, we cannot include discourse entities that are not at all salient and entirely new in the discourse in the Cf list. Therefore, a discourse-new entity cannot be the Cb of the discourse by any means. However, there are instances where the preposed constituent in the inversion construction represents discourse-new information. In fact, Birner (1996) finds 141 instances of this kind out of 1290 tokens. All of these cases constitute apparent counter-examples to her

strong claim that the preposed constituent in the inversion construction is the Cb of the discourse.

(34)   At nearly every angle that a camera might catch there were banners featuring checkered flags and race cars encircled by the words 'National Association of Record Breakers." Less abundant but equally prominent were banners proclaiming 'Powered by Energizer.'

(35)   I had lunch at Marshall Field's yesterday and you wouldn't believe who was there. Behind a cluster of microphones was Mike Ditka, holding yet another press conference.

As discussed above, the claim that the preposed constituent in the inversion structure is characterized as the Cb of the discourse is too strong. Instead, I make a less strong claim that the preposed element in the inversion construction is the Cp of the utterance. This might be the most natural and obvious claim regarding the construction of inversion that anyone can think of. Yet, this necessarily has two further implications. First, contrary to the general practice that uses grammatical relations as the criterion for the Cf ranking, I suggest that the Cf list must be determined by the surface word order. When Cfs are ranked in terms of the surface word order, the preposed constituent can be defined as the Cp of the utterance all the time. Different word orders are motivated depending on different information structures. Then, the centering theory needs to incorporate this general linguistic principle by ranking the saliency of Cfs in terms of the surface word order.

Also, my claim implies that the discourse function of the inversion structure is not text development but merely prominence-giving. This is another significant shift of perception that my study elicits in the study of inversion. Ilić (1998) proposes two kinds of discourse function: one is text development discourse function and the other is the prominence-giving discourse function. The former primarily links the current discourse with the preceding text. For instance, sentence topic is argued to be a linguistic constituent that can perform a cohesive function in the process of linking the current utterance to its previous context. Ilić (1998) further claims that the cohesive discourse function can be captured not only with respect to the preceding discourse but also with respect to the following context. On the other hand, the prominence-giving discourse function concerns the utterance-level processing since an utterance is analyzed as an open proposition. When we convey a piece of information, some of the information is regarded as presupposed, old information while others are regarded as the most focused parts of the information. Thus, elements in an utterance can be rearranged in terms of the open proposition of the utterance as well. In sum, we can arrange elements in a sentence for the development of the discourse in order to link the current utterance to the preceding or the following text or for the purpose of giving prominence to a particular part of an utterance.

Then, what kind of discourse function does inversion serve? In general, it has been believed that the inversion structure is triggered by the text development discourse function. By claiming that the preposed element in the inversion is the Cb, Birner (1998) implicitly claims that inversion is involved with the text devel-

opment discourse function. Ilić (1998) also illustrates the inversion construction as an example of the text development discourse function. However, this paper newly proposes that the discourse function of the inversion is merely prominence-giving, by arguing that the preposed element in the inversion is the Cp, not the Cb. The rearrangement of the elements that occur in the inversion construction does not concern the overall informational structure of the discourse but only concerns the information structure of the utterance itself. That is, the preposed constituent and the postposed constituent in the inversion construction only access the salience or the prominence of the discourse entities in the utterance itself, rather than considering the informational linkage with the surrounding discourse.

Valduví (1992) claims that information packaging optimizes the entry of data into the hearer's knowledge store. The hearer's knowledge store evolves both within an utterance by the ranking of the Cfs and throughout the discourse development. To rephrase the discourse function of the inversion construction in terms of Valduví's (1992) terminology, the construction of inversion can be said to be an utterance-level information packaging strategy rather than a discourse-level information packaging strategy.

To clarify my claim further, I believe that a few remarks are in order. First, in the following, I will point out that using the surface word order as the criterion for the Cf ranking is evidenced in other studies as well. To be more specific, I will discuss the example presented by Rambow (1993) to show that the surface word order plays a significant role in determining the Cf ranking in general. Second, I would like to note that there is evidence that inferrable information must not be treated as equally as the evoked information. This evidence is in favor of my claim, refuting Birner's (1998) claim. Third, defining the preposed element as the Cb implicitly claims that the inversion construction is a kind of topic construction since the Cb is generally regarded as a topic in the centering theory. This paper avoids this hasty conclusion by claiming that the preposed element is not the Cb but the Cp.

Let me first provide an independent evidence that shows us that the surface word order must be the determining factor for the Cf list. Rambow (1993) claims that Cfs are ranked in terms of the surface word order even though his claim is on the basis of German data. For instance, in (36b) and (37b), the pronoun *sie* is potentially ambiguous since, in principle, both the phrase *such a measure* and the phrase *the Russian economy* can be realized with the third-person feminine pronoun *sie*. However, in fact, the referent of the pronoun is disambiguated in terms of the word order of the utterance. In (36), *such a measure* is the referent of the pronoun *sie* while, in (37), *the Russian economy* is the referent of the pronoun *sie*. As Rambow (1993) evidently shows us, the fact that different surface word order affects the referent of the pronoun *sie* tells us that the Cfs must be ranked from the left to the right.

(36)   a. Gluaben Sie, dass [eine solche Massnahme] [der russischen
          think   you that a   such   measure   the Russian
          Wirtschaft] helfen kann?
          economy   help   can

'Do you think that such a measure can help the Russian economy?'

b. Nein, sie ist viel   zu primitiv.
No.   She is much too primitive.

'No, it is much too primitive.'

(37)   a. Gluaben Sie, dass [der russischen Wirtschaft] [eine solche Massnahme]
think you that the Russian economy a such measure helfen kann? help
can 'Do you think that such a measure can help the Russian economy?'

b. Nein, sie ist viel zu primitiv. No. She is much too primitive. 'No, it is
much too primitive.'

As discussed above, Birner (1998) must treat the inferrable information and the
evoked information equally to claim that the preposed element in the inversion con-
struction is the Cb that links the current utterance to the preceding text. However,
Birner (1997) observes that the two different information statuses are not treated
alike when the intonation is taken into account. It is observed that the preposed
element that represents the explicitly evoked information is generally de-accented.
For instance, in (38a), (38b), and (38c), the preposed constituents, *the magazine*,
us and *at issue* are de-accented. However, when the preposed element represents
the inferrable information, it must receive an accent. As illustrated in (39), the
preposed elements *ragged nails*, *walls*, and *at issue* must receive a pitch accent.
This different phonetic fact tells us that we somehow recognize the two different
information statuses differently and thus it is not desirable to treat the inferrable
information and the evoked information alike. My analysis of the inversion con-
struction, however, does not encounter such a critical problem that Birner (1998)
would face.

(38)   a. "What's Hot," a magazine published by General Foods for children aged
4 to 14, is sent to households that are known to be responsive to ad
promotions... ACCOMPANYING the magazine are cents-off coupons.

b. We have 160 acres here. AROUND us are industrial parks.

c. The issue is whether this city of 95,000 should ban all research and
development of nuclear weapons within its borders... ALSO at issue is
whether this city, the home of Harvard and MIT, should impose finds
and jail sentences.

(39)   a. By the time he got to Kendall's Lobster Pound, Ray was home. He was
making tea and warming his deeply lined, cracked hands on the pot -
UNDER his RAGGED NAILS was the mechanic's permanent, oil-black
grime.

b. Bony was taken into a small room furnished with a writing desk, a
lounge, stiff-backed chairs and bookcases crowed with volumes. On the
WALLS hung framed original drawings of illustrations of the man's
stories.

c. Donald Wallace, 28, who faces murder charges in Cook County, has
told Hammond police he would be willing to help them find the body.

> But his court-appointed attorneys have failed a motion with the Illinois Supreme Court to keep him from doing so. At ISSUE is whether an Illinois judge can allow a man accused of murder to cooperate with authorities in another state without going through criminal extradition proceedings.

Furthermore, Birner (1997) finds that, not only in the inversion construction but also in the topicalization construction, the two information statuses are treated differently with respect to intonation. In the topicalization construction in (40), the embedded noun phrase *these rugs* can be de-accented since it is explicitly evoked in the previous discourse. However, the word *one* should receive a pitch accent since it represents inferrable information. The example in (40) further tells us that the inferrable information status must be treated differently from the evoked information status.

(40)   Colonel Bykov had delivered to chambers in Washington six Bokhara rugs...
        One of these rugs Chambers delivered to Harry Dexter White.

In the centering theory, the Cb is considered to be the element that the utterance concerns about and has generally been defined as a topic. Thus, Birner's (1998) claim that characterizes the preposed element as the Cb can mislead us to the conclusion that inversion is a topic-marking device. However, my claim refutes this hasty implication. Givón (1983) provides an exhaustive list of topic-marking constructions: they are zero pronouns, pronouns, definite noun phrases, possessed definite noun phrases, left dislocation, right dislocation, demonstrative pronouns, as respectively illustrated in (41). Interestingly, he excludes the inversion construction while including left dislocation in the topic-marking constructions. That is, at least according to Givón (1983), left location and inversion are distinguished in that the former is a topic construction while the latter is not. However, Birner's (1998) study nullifies the distinction and implies that the inversion construction is another topic construction. My claim is consistent with Givón (1983) who thoroughly studied topic constructions. This last argument might not be as strong as the other arguments but seems to show us that there are some views that do not treat the inversion construction as a topic construction.

(41)   a.   ... and the turkeys would come in and [Ø] roost in...
        b.   He was born in Sherman, and when he was about a year old they moved down to... Hanson...
        c.   ... Anyway, the turkeys would come in to the river to roost...
        d.   . ... Well my dad was born in Sherman...
        e.   ... my dad, well he ever did was farm and ranch...
        f.   ... They'd go butcher them, even the honest ones...
        g.   ... no, really it was good land Tom, it just needed a lot of development, that's the way all that country, that's a ... that's a dry country up there...

5. Conclusion

Birner (1998) has attempted to analyze the inversion construction within the framework of the centering theory. In doing so, she claimed that the preposed element of the inversion construction must be defined as the Cb of the utterance. However, this paper finds not a few problems in such a strong claim. Thus, this paper instead proposes that the preposed element in the inversion construction must be defined as the Cp of the utterance, suggesting that the forward-looking centers are to be ranked in terms of their apparent word order. This claim has the implication that the construction of inversion does not process the coherence of the entire discourse but it only deals with the prominence of the utterance where it occurs. In other words, contrary to the general view that regards the inversion structure as a device that connects the current utterance to the previous text, this paper claims that the inversion construction is an utterance-level information packaging device that merely marks the salience of the utterance itself, calculating the open proposition of the utterance.

My claim is justified in the following respects. First, using the surface word order as the criterion for the Cf ranking is evidenced in other studies such as Rambow (1993) who provides explicit examples where ranking Cfs in terms of the surface word order helps to disambiguate the reference of a pronoun. Second, my claim does not encounter a problem that Birner's (1998) strong claim must face. Birner (1998) treats inferrable information as equally as the evoked information. However, phonetic evidence is found that such a treatment is not desirable. My claim that the preposed element in the inversion structure is merely the Cp rather than the Cb can avoid such a critical problem. Third, defining the preposed element as the Cb implicitly claims that the inversion construction is a kind of topic construction without being distinguished from left dislocation. This paper also avoids this hasty conclusion by claiming that the preposed element is not the Cb but the Cp.

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