



A recipient-based study of the discourse functions of marked topic constructions

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ARTICLE INFO

Article history:

Received 31 January 2010

Received in revised form 22 June 2010

Accepted 22 June 2010

Keywords:

Left-dislocation

Marked topic

Speech perception

Subject marking

Topicalization

ABSTRACT

Researchers have assumed that marked topic constructions have an effect on the structuring of discourse. So far, this effect has only been surmised by research on speakers' presumed intentions. This study offers – for the first time – an empirical recipient-based perspective, using psycholinguistic laboratory procedures, applied to authentic speech. Three marked topic constructions (Left-Dislocation, Object Fronting, and Subject Marking) have been compared to the unmarked control SVO sentence. Significant results have been obtained, showing that certain discursive functions (in the realms of discourse management and discourse content), earlier identified as speakers' intentions, indeed have an observable effect on the listeners. The addition of an empirical dimension has yielded results which are more comprehensive, more robust and more refined than the results previously obtained through use of qualitative methods alone.

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1. Introduction¹

There seems to be an unbridgeable divide between the study of the pragmatics of authentic discourse data and empirical psycholinguistic experimentation. So far, the laboratory conditions of the latter have led researchers to experimentation on constructed data only, thus distancing the results from any relevance to actual language use, whereas, authentic discourse data have not been evaluated using experimental testing. This article presents a pioneering attempt to integrate laboratory experimentation and natural discourse utterances. We present here an experiment which utilizes authentic occurrences of marked topic constructions under laboratory conditions in order to examine listener perception of these constructions. This novel methodology is extremely challenging, and admittedly certain compromises have had to be made. In what follows, we offer an explicit presentation and careful consideration of the specific problems arising and the ways we handled them. We hope the article sets the ground for pragmatists to further explore and develop this important methodological endeavor to combine between natural discourse analysis and psycholinguistic quantitative methods.

Marked topic constructions are normally analyzed through the lens of Information Structure. Researchers of Information Structure analyze the text itself, and while assuming the speaker's perspective, they reach conclusions regarding the speaker's hypotheses and intentions in the use of various constructions. Prince (1981a, p. 224), for example, explains that 'information packaging [i.e. information structure] reflects the sender's hypotheses about the receiver's assumptions and beliefs and strategies.' Similarly, Chafe (1976, p. 27) argues that 'the study of Information Structure has to do with the speaker's assessment of how the addressee is able to process what he is saying against the background of a particular context.' Likewise, Lambrecht (1994, p. 3) maintains that 'information structure is concerned with such psychological phenomena

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¹ In this article, the following abbreviations will be used: SBCSAE = Santa Barbara Corpus of Spoken American English; LD = Left Dislocation; OF = Object Fronting; SM = Subject Marking.

as the speaker's hypotheses about the hearer's mental states ...' Undoubtedly, an analysis of the speaker's calculations regarding the listener's mental states, as they arise from the text itself, can reveal a great deal about language. However, it would be a mistake to overlook the listener's perspective. Thus, in order to confirm the assumptions regarding the speaker's intentions, we believe it is also necessary to check whether these intentions are indeed perceived by the listener. After all, successful communication depends upon both parties. None of the previous studies we are familiar with in the field of Information Structure has offered such an outlook.

Admittedly, qualitative text analyses do offer various verification methods. For example, conversation analysts often talk about 'next-turn proof' (Hutchby and Wooffitt, 1998, p. 15) and about the active role that not only speakers but also listeners take in the actual shaping of the text (Tannen, 1991, p. 12). However, such methods are limited. After all, we cannot sidestep the fact that, despite the sophisticated procedures, discourse analysis is, nevertheless, based on the researcher's interpretation of the text.

We believe the current research exemplifies how the combination between: (a) qualitative and quantitative research methods, (b) methods of discourse analysis on the one hand, and methods of psycholinguistics on the other, and (c) an analysis of speaker intentions on the one hand, and an analysis of listener perception on the other, can yield a picture of the pragmatic functions of marked topic constructions, which is more comprehensive, more robust, and more refined than could otherwise be achieved.

1.1. The constructions analyzed – form

In this study, we focus on three different marked topic constructions:

(i) *Left-Dislocation* (LD) (a.k.a. Detachment), as in

(1) *Cathy –*

She's not a good friend herself.²

(ii) *Object Fronting* (OF) (a.k.a. Topicalization/Y-Movement), as in

(2) *These shoes we never did put on a horse.*

(iii) *Subject Marking* (SM) (a prosodic alternation in which the subject is stressed and occupies a separate intonation unit), as in

(3) *...Dad,*

...you know,

has done some of it.

In English, the unmarked sentence has an SV(O) (Subject–Verb–Object) structure and the subject is not stressed. The three constructions presented above deviate from the unmarked structure in that they have marked topics.³ The form of topic marking is different in each case, and consequently the degree of markedness is also not equal. In LD, the topic is doubly marked. First, it is morpho-syntactically marked as a left-dislocated element followed by a resumptive pronoun. Secondly, the dislocated topic is prosodically marked as a separate intonation unit.⁴ In our analysis of the Santa Barbara Corpus of Spoken American English (SBCSAE), Parts 1–4, only 2% (5 out of 207) of LDs were not accompanied by prosodic marking of the topic as a separate intonation unit. The fronted object that serves as topic in the OF construction is first of all positionally marked. It may also be marked prosodically: in our analysis of the SBCSAE, Parts 1–4, we have found that the fronted object appears in a separate intonation unit in 56% of the occurrences (19 out of 34). In the SM construction, the topic is marked only prosodically, since by definition, in this construction the subject occupies a separate intonation unit (Netz and Kuzar, 2007).⁵

In addition, it is interesting to note the rarity of OF in English. Because of the relatively rigid word order of English, and the fact that in English the 'formal sentence structure' overrides the 'functional sentence perspective' (Mathesius 1975 [1961], p. 84), we see indeed that in English the OF construction exhibits an extremely limited distribution. Altogether, only 34 occurrences of OF were found in the SBCSAE, Parts 1–4, in contrast to 207 LDs and 349 SMs.

² Examples in this study are taken from the Santa Barbara Corpus of Spoken American English (SBCSAE), Parts 1–4 (Du Bois, 2000). For the readers' convenience, transcriptions have been slightly simplified.

³ In this study, only topicalization is considered. The fronting of objects or the prosodic marking of subjects for the sake of focalization are of no concern here and have not been used in the experiment. All our test sentences carry final focus stress in addition to possible stress on the marked topic. In focalization constructions *only* the first element is stressed, with the rest of the sentence unstressed.

⁴ We used the SBCSAE which is transcribed by intonation units (each line represents one intonation unit). Features that characterize delimitation of an intonation unit include changes in aspects such as pitch, duration, intensity and voice quality, as well as pauses (Chafe, 1994, p. 58).

⁵ This view of topic marking is different from Ward (1988), Birner and Ward (1998), and Prince (1997, 1999). In their view of topicality, the preposed constituent is not necessarily the topic of the sentence. For example, in the sentence *Baseball I like a lot better* as a response to *Do you watch football?*, Birner and Ward (1998, pp. 38–39) *sports* rather than *baseball* is the topic.

1.2. The constructions analyzed – function

The three constructions analyzed differ not only in form but also in function. Givón (1995, pp. 71–73) argues that LD marks discontinuity in discourse: on the one hand LD deactivates the current discourse topic, and on the other hand it ‘signals the opening of a new thematic chain’. Similarly, Geluykens (1992, p. 153) argues that the main function of LD in spoken English is that of ‘referent introduction’; Gregory and Michaelis (2001, p. 1670) argue that speakers use LD as a ‘topic establishing device’; and Netz and Kuzar (2007) argue that LD functions as an ‘opening move’.

On the whole then, researchers dealing with the LD construction tend to agree that LD is generally used for establishing topicality of a (relatively new) referent in the discourse. At the same time, many of these researchers also point out that there seem to be cases of LD which do not fit into this unitary function. Hence, Geluykens (1992, p. 155) reports: ‘A small section of the database was found not to be referent-introducing.’ Most of these are cases expressing either contrast or listing. According to Prince (1998, p. 287) one of the three functions of LD is to trigger an inference of a (*po*)set relation (a partially ordered set relation) between the left-dislocated referent and prior referents in the discourse. She maintains that this is a function which LDs and OFs share in common.

Birner and Ward (1998, pp. 93–95) offer an extensive analysis of the different types of poset relations, the five most commonly used relations being *set/subset*, *part/whole*, *type/subtype*, *greater-than/less-than*, and *identity* (Birner and Ward, 1998, p. 45). Furthermore, in Netz and Kuzar (2007) it is argued that not only LD and OF but also SM is used to signify logical relations (such as contrast) that exist between two or more referential entities.

As for SM, the discourse functions of this construction were first defined and analyzed (beyond sheer topic–comment analysis) in Netz and Kuzar (2007). There, it has been argued that in contrast to LD, which functions as an ‘opening move’, SM functions as a ‘sustaining move’. At this point, we would like to elaborate on the conclusions of Netz and Kuzar (2007), since the latter constituted the starting point of the current study.

Using the methodology advanced by Conversation Analysis, Netz and Kuzar (2007) offer a thorough qualitative analysis of the pragmatic functions of the three marked constructions: LD (called XP in that study), SM, and OF. They argue that LD and SM both function in the realm of *discourse management*:

- LD signaling an opening move, through which the speaker indicates his/her wish to hold the floor, and to continue talking about the *sentence* topic of the LD construction as the *discourse* topic of that section;
- SM signaling a sustaining move, through which the speaker sustains the general *discourse* topic, while overcoming some kind of difficulty in the information flow (such as the introduction of a new – but usually trivial – or a heavy *sentence* topic into the discourse), yet without any intent to further develop the *sentence* topic of the SM construction in the subsequent discourse.

In addition, in Netz and Kuzar (2007) it has also been argued that all three constructions – LD, SM, and OF – function in the realm of *discourse content*, typically signifying logical relations that exist between the referents of nominal expressions in the text. The most common discourse content relation is that of contrast.⁶ In fact, most researchers do not mention any function other than contrast. In Netz and Kuzar (2007) other relations are mentioned, such as similarity, listing within the topic and others.⁷ It has also been noted there that the text segments signaled by LD, SM, and OF in the realm of discourse content are clearly

⁶ Of course, there are many other ways to express logical relations. Clearly, even the unmarked sentence may display such relations without making them prominent.

⁷ The following is an example of LD creating a construction expressing the logical relation of similarity, in which a referent is selected and one of its attributes is found to be similar to that of another referent:

- (i) LYNNE: (H) well then once you stretch the shoe out,
 .. well then,
 (H) the two corners.
 they go out, too.

The next example is of LD manifesting listing within the topic, i.e. a number of referents are selected and placed in the marked theme and then there is a sentence that makes an integrating statement about them:

- (ii) MONTOYA: ... Power is relational.
 ... How can you measure power.
 ... Power is impossible to measure.
 ... Alright?
 .. In other words,
 you cannot break power apart into vi_ __
 (H) various ingredients,
 .. and say,
 ... A,
 ... B,
 ... C,
 ... D,
 these are the ingredients of power.

planned, structured, and typically short (spanning 1–2 sentences), in contrast to the structure of the text in the realm of discourse management, which is typically open-ended and longer.

After discussing the form and function of the three marked constructions, we would like to make two concluding notes concerning two rather controversial issues: markedness and topicality.

Moravcsik and Wirth (1986, p. 2) offer a very general and intuitive account of the notion of markedness. According to them, markedness is a combination of three main factors: familiarity, variability, and complexity. Unmarked features are typically more familiar (i.e. exhibit a wider distribution), more variegated (i.e. exhibit more paradigmatic complexity), and structurally less complex (i.e. exhibit less syntagmatic complexity). In terms of familiarity, it has been noted above that OF exhibits the most limited distribution and consequently the highest degree of markedness of the three constructions. In addition, we have seen that OF is more specialized in its pragmatic function than are LD and SM, since OF functions only in the realm of discourse content, whereas LD and SM function both in the realm of discourse content and in the realm of discourse management. Therefore, also in terms of variability, we see that OF is the most prominently marked of the three constructions. Finally, in terms of structural complexity, we have seen that, exhibiting double markedness, LD and prosodically marked OFs are more complex and therefore more prominently marked than is SM.

As for topicality, the term topic(ality) has been controversial since its inception. Interestingly, however, the domain of dispute involves mostly the unmarked sentence. We have just shown that LD, SM, and OF are marked constructions. Now what exactly are they marked for? Adhering to a strict distinction between sentence topic and discourse topic, we view these constructions as marked for sentence-topicality, namely, within the boundaries of the sentence, the initial element constitutes the aboutness anchor. This sentential topicality is further utilized in discourse in different ways. Only in LD, when functioning as an opening move, discourse topicality is produced as well. But in SM, when signaling a sustaining move, i.e. a return to fluency after a case of disfluency, the previous discourse topic prevails, while the sentence topic, the vehicle of correction, blends inconspicuously into the subsequent narrative. As for the domain of content management, in all three constructions sentential topicality and its aboutness effect are utilized to highlight the two or more elements that are contrasted, compared, listed, and so on.

To conclude, the three constructions LD, SM, and OF are marked, but to different degrees and fulfilling different functions. LD and OF are more prominently marked than is SM. In addition, of the three, only LD is utilized to mark not only the sentence topic but also the discourse topic. In the discussion of the results of the experiment, we will show that these aspects of markedness and topicality influence the way people perceive these constructions.

1.3. Research design

The design of the current experiment is similar to that used by Gernsbacher and Shroyer (1989). In their research, Gernsbacher and Shroyer (1989, p. 537) ask whether referents introduced with the indefinite *this* receive a special mental representation in memory, and are consequently more accessible than are referents introduced with the indefinite article *a/an* (as in: *Sally was pretty busy too. She found this/an egg*). Gernsbacher and Shroyer (1989) thus offer a psycholinguistic analysis of listener perception, which is based on conclusions from previous linguistic studies (Prince, 1981b, and Wright and Givón, 1987). In these latter studies, in order to assess the degree of topicality of the referent introduced with the indefinite *this*, various mechanisms of text analysis, such as measurements of referential distance and topic persistence, were employed (Prince, 1981b, and Wright and Givón, 1987). Gernsbacher and Shroyer (1989) complement these linguistic analyses from a psycholinguistic perspective, looking at the effect of the use of the indefinite *this* in comparison to the indefinite *a/an* on listener perception. Like Gernsbacher and Shroyer (1989), we have also conducted a recipient-based study, whose starting point is conclusions arrived at through linguistic analysis of the text itself.

In their research, Gernsbacher and Shroyer (1989, p. 537) presented auditory, constructed narratives to their subjects. The last sentence of each narrative introduced a new concept, either with the indefinite *this* or with the indefinite *a/an*. The subjects' task was to continue the narrative. Presumably, if concepts introduced with *this* are more accessible, they will be referred to more frequently, more immediately, and with less explicit anaphors; and this indeed was the case. (Gernsbacher and Shroyer, 1989, p. 39) Similarly, the subjects in the current experiment were presented with tokens of three marked topic constructions (LD, SM, and OF). However, unlike Gernsbacher and Shroyer, who used constructed stimuli, we employed authentic stimuli taken from corpora of naturally occurring speech.

Another innovative aspect of this study lies, then, in the attempt to bring authentic speech into the lab. Indeed, experimental studies dealing with language perception, recall, and comprehension are uniformly based on constructed speech (e.g. Gernsbacher and Shroyer, 1989; Gernsbacher and Hargreaves, 1992; Gernsbacher and Jescheniak, 1995; Birch and Garnsey, 1995). Thus, in contrast to traditional psycholinguistic experiments, which are typically detached from the actual conversational setting, the starting point of the current research is the conclusions from previous studies of authentic discourse, and the stimuli used in the experiments are taken from corpora of naturally occurring speech. Indeed, constructed discourse offers certain advantages – mainly the fact that these materials can be easily manipulated and controlled in the lab. However, the use of constructed discourse also involves certain shortcomings. First and foremost, such a practice entails an inescapable gap: the conclusions are drawn on the basis of constructed language and are then extended to natural spoken language. Of course every laboratory experiment involves a certain gap from the 'real world'. However, it is argued here that this gap can be considerably reduced through the use of authentic speech.

As noted above, in Gernsbacher and Shroyer (1989) the subjects' task was to continue the narratives. Similarly, our experiment also involved continuation of discourse. However, in our study the continuation task was close-ended: the subjects were instructed to choose from two alternative continuations, one which had actually occurred immediately after the stimulus, and another taken from a different point in the conversation. Furthermore, Gernsbacher and Shroyer (1989) were interested in the persistence of the referent in subsequent discourse. We, however, were not interested in topic persistence per se, but rather in a more general outlook at the development of the discourse, under the influence of the different marked topic constructions. The current experiment is, therefore, based on the assumption that upon encountering the alternative marked topic constructions, listeners have different expectations regarding the development of discourse. It was consequently predicted that if subjects indeed perceived the pragmatic functions of each of the three marked topic constructions analyzed here, subjects would successfully identify the continuation that matched the respective function.

The close-ended nature of the task required taking special measures that would ensure the isolation of sentence structure as the test variable. That is, since two alternative continuations were provided, we had to make sure that subjects made their choices on the basis of sentence structure, rather than content. In order to do so, several methodological decisions have been made. First, stimuli were presented as isolated sentences, detached from immediately preceding discourse. If sentences were presented along with the preceding text, it could be argued that the subjects succeeded in choosing the right answer because of the elaborate context and not because of the specific structure of each stimulus. Note, however, that it was also important not to present the test items void of context altogether. Indeed, Schütze (1996, p. 153) argues that when sentences are presented in isolation, subjects necessarily build up hypothetical contexts in their attempt to make sense of the discourse. This, according to Schütze, creates a problem of high variation among these hypothetical contexts. In order to minimize variation, he argues that it is best to provide the subjects with the actual context, rather than leave it up to them to guess. Accordingly, in the current experiment, a very general introductory caption was provided, specifying the general conversational context. Here is an example of a full test item, preceded by its introductory caption (in brackets). (The subjects' task was to identify the answer a/b that seemed to them to have originally come immediately after the stimulus in the actual conversation.)

(4) (*Sharon is telling her friends about her experiences as a novice teacher*):

Sharon: This kid,
you know,
she..most of the time doesn't have money.

Sharon: a. I have to give it to her myself, you know, she's deprived of lunch.

Sharon: b. Cathy, this is a raging bureaucracy, and there's nothing that I can do.

But even when sentences were detached from immediately preceding discourse, the content of the stimuli themselves, as well as the content of the continuations could still be argued to serve as a clue, leading to the correct answer, regardless of sentence structure. Therefore, we had to control for content. In order to do so, we have decided to create a control group, which retained the exact content of the test items (i.e. stimuli and continuations) but did away with the marked structure of the stimuli.

However, elimination of marked structure turned out to be a complicated task. First, the experimental marked sentences were authentic. In order to perform the necessary manipulation that would eliminate the marked structure, authenticity could no longer be retained. In other words, while the stimuli in the experimental group were taken from corpora of naturally occurring language, the stimuli in the control group constituted manipulated language.

Secondly, it raised another problem. Language structures do not necessarily fall into discrete units. Marked structure, as a case in point, cannot simply be sliced out and eliminated. Rather, elimination of marked structure might demand making a choice between several alternative structures that would take its place. Clearly, the appropriate alternative structure should be unmarked. But then, what constitutes an unmarked sentence? Would the unmarked stimulus be a sentence with a lexical referent in topic position or a pronoun? Previous studies have shown that lexical subjects are very rare in spoken discourse, and are therefore viewed as marked (Du Bois, 1987, Francis et al., 1999). Furthermore, Lambrecht (1994, p. 89) argues that sentences in which all argument positions of the verb are filled with lexical NPs (i.e. sentences which he refers to as 'canonical sentences'), such as Sapir's (1921) well-known example: *The farmer kills the duckling*, 'violate our intuitions concerning ordinary language use.' Now, our experiment is based on intuitions of native speakers regarding the development of naturally occurring spoken discourse. Therefore, it seems that in such an experiment, the choice of a sentence structure which is counterintuitive and unordinary would be inappropriate, especially if this structure is meant to represent the unmarked form.

But then, if we choose to use a more ordinary sentence structure with a pronominal referent in topic position, how could the exact original content of the experimental stimulus be retained in the control version? In the end, in order to ensure that the control stimuli are indeed unmarked, we have decided that the topics of the stimuli would be pronominal, rather than full lexical NPs. However, in order not to lose the content, we added a bubble, which indicated the full reference of the pronoun. Examples (5), (6), and (7) are test items (stimuli plus continuations) of LD, OF, and SM constructions from the experimental group, each followed by its unmarked counterpart from the control group:

(5) (i) LD experimental: (+) marked structure:

(Face-to-face conversation, recorded in a family home – talking about family and friends, reminiscing about childhood):

Wess: Oscar,
Marve's dad,
he was rough.

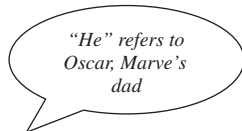
Wess: a. But all little kids pull their own teeth. I always pulled my own teeth.

Wess: b. And you know, we used to go out in back of my dad's barn and talk to Mister Heschberger and Oscar.

(ii) LD Control: (-) marked structure:

(Face-to-face conversation, recorded in a family home –talking about family and friends, reminiscing about childhood):

Wess:



He was rough.

Wess: a. But all little kids pull their own teeth. I always pulled my own teeth.

Wess: b. And you know, we used to go out in back of my dad's barn and talk to Mister Heschberger and Oscar.

(6) (i) OF experimental: (+) marked structure:

(Daughter (Lynne) telling her mother about her training in blacksmithing):

Lynne: ..But,
these shoes we never did put on a horse.

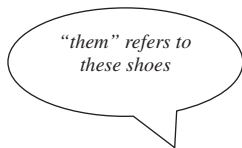
Lynne: a. They're too wet, and that shoe can just pull right off, because it's just, the hoof wall is so soft.

Lynne: b. We just put the shoes that were already made.

(ii) OF Control: (-) marked structure:

(Daughter (Lynne) telling her mother about her training in blacksmithing):

Lynne:



We never did put them on a horse.

Lynne: a. They're too wet, and that shoe can just pull right off, because it's just, the hoof wall is so soft.

Lynne: b. We just put the shoes that were already made.

(7) (i) SM experimental: (+) marked structure:

(Daughter (Lynne) telling her mother about her training in blacksmithing):

Lynne: Dad,
you know,
has done some of it.

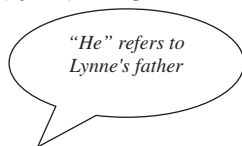
Lynne: a. That's another thing too, I kind of got a general idea of how to do it, just watching him.

Lynne: b. When he first started doing it, he only did like one hoof.

(ii) SM Control: (-) marked structure:

(Daughter (Lynne) telling her mother about her training in blacksmithing):

Lynne:



He's done some of it.

Lynne: a. That's another thing too, I kind of got a general idea of how to do it, just watching him.

Lynne: b. When he first started doing it, he only did like one hoof.

Note that on the one hand, in order not to disrupt the natural flow of the sentence, we have deliberately decided not to put the referential caption in square brackets within the sentence itself (e.g. *He [Oscar, Marve's dad] was rough*). On the other hand, in order not to undermine the importance of the information provided in this caption, we have also decided not to

put the caption as an introductory sentence preceding the stimulus (as was done in the case of the conversational context). Finally, in order to avoid an incorporation of the contents of the bubble into the stimulus, we hedged it by the formula '*pronoun refers to referent*'. We believe that this combination of means on the one hand retains the exact content of the original topic and on the other allows an undisrupted flow of the sentence.

Another consequence of the difference between the marked naturally occurring text and the unmarked adapted text was that while the stimuli of the experimental group were presented both visually and auditorily, the stimuli of the control group were presented only visually. We realize that this methodology is not an ideal choice, but rather a compromise necessitated by the decision to experiment on natural speech. Without this allowance, this direction of research could not have been pursued. However, taking into consideration all options and limitations, we believe it is a justified decision. First, as pointed out above, in order to perform the necessary manipulation, authenticity in the control stimuli could not be retained anyhow. If we had insisted on creating audio stimuli for the control group, the sentences would have had to be artificially read out by a speaker, and recorded in the lab. The experimental stimuli were taken from a variegated corpus, and therefore these stimuli included numerous speakers, each with his/her unique accent, pronunciation, tone, rhythm, fluency etc. Artificially recorded audio stimuli could not have mimicked all these aspects of natural speech. Secondly, previous studies, such as Fodor (2002), as well as Kreiner (2003) have found that prosody is an integral part not only of spoken language but also of written language. Fodor (2002) makes this point quite clearly in her following statement:

Even in reading, prosody is present. Even in silent reading, and even if prosody-marking punctuation is absent. Prosody is mentally projected by readers onto the written or printed word string. And – the crucial point – it is then treated as if it were part of the input.

So, written stimuli are not free of prosody. Furthermore, it is assumed here that written sentences are normally read with unmarked prosody. According to Lambrecht (1994, p. 15), in prosodically unmarked sentences, the main stress appears in clause-final (or near-final) position. It is further assumed here that unless marked otherwise (e.g. via use of italicized or bold font or through contextual cues), pronouns are normally not stressed in silent reading. Based on these observations, it is argued that the control stimuli were not read entirely without prosody, but rather with the expected unmarked prosody projected by the reader.

Before we present the method and the results of the experiment, we would like to provide an overview of the design and the main hypotheses. The experiment consisted of two groups: an experimental group, which was exposed to marked stimuli, and a control group, which was exposed to the same stimuli but without the marked structure. It was predicted that subjects in the control group would not be able to choose the correct continuation as accurately as subjects in the experimental group, once the marked structure was eliminated, and only the content was retained. Note, however, that it was not necessary, or even expected, that the results of the control group would equal chance (i.e. 50%). Admittedly, the content of the stimuli, as well as the content of the two alternative continuations, continues to play a role, and to serve as a clue leading to the correct answer, even when the clue of markedness has been eliminated. If this had not been the case, the control group would not have been necessary to begin with, because the results of the experimental group could have simply been compared to 50%.

Finally, as pointed earlier, in Netz and Kuzar (2007) it has been argued that the three marked topic constructions – LD, SM, and OF – function in the realm of discourse content; but only two of the three – LD and SM – function also in the realm of discourse management. Consequently, the experiment is divided into two parts: Part I looks at the discourse management functions, and Part II at the discourse content functions. In the following sections we present the method and the results of each part of the experiment, followed by a general discussion of both parts in which we show how the results are actually interrelated.

2. Part I – discourse management

As noted above, Part I looks at the pragmatic functions of LD and SM in the realm of discourse management: LD as an opening move, signifying the speaker's intent to continue talking specifically about the sentence topic of the LD construction, and SM as a sustaining move, signifying the speaker's intent to develop the general discourse topic, while overcoming some kind of difficulty in the information flow.

The subjects were thus presented with authentic tokens of LD and SM sentences, taken from the SBCSAE, Parts 1–4. The test sentences were presented both visually and auditorily. Along with each stimulus, the subject was visually presented with two alternative continuations of the conversation. The continuations were also taken from the SBCSAE; however, only one of the options was the actual continuation of the discourse, whereas the other was taken from a different part of the conversation (or even from a different conversation in the corpus). The subject's task was to identify the continuation that had immediately followed the stimulus in the original conversation. In LD stimuli, the correct choice was a segment in which the sentence topic of the stimulus constituted a key referent, whereas the incorrect choice continued the general discourse topic, but gave no special role to the sentence topic of the LD stimulus. In SM, the design was *mutatis mutandis* the same. That is, in SM, the correct answer sustained the general discourse topic, without further developing the specific sentence topic of the SM construction, whereas the incorrect answer explicitly continued the sentence topic of the SM stimulus. Here

is an example of an LD, functioning as an opening move, followed by an example of an SM, functioning as a sustaining move, both moves – in the realm of discourse management:

(8) (*Daughter (Lynne) telling her mother about her training in blacksmithing*):

Lynne: Horses at college,
they just haven't been disciplined enough.

Lynne: a. And they're just, it's like a kid, they're just ornery,
you know?

Lynne: b. And that's another thing we had to learn in class you know,
just had to learn our safety of where to stand...⁸

(9) (*Phone conversation between family members at Christmas*):

Cindy: And the place we go,
is on,
in the pyramid area,
where they have kinda like a food court.

Cindy: a. So we're in the mall at least once a week, which is bad.

Cindy: b. This is the best place I've found. This is a tiny little,
geographically wonderful place.⁹

Hence, in the LD sentence (7), in the correct answer (7a), the sentence topic of the stimulus (*horses at college*) plays a major role in the continuation of the discourse, whereas in the incorrect answer (7b), this topic is not mentioned, but rather the conversation continues around the general discourse topic of controlling horses. In contrast, in the SM sentence (8), in the correct answer (8a), the sentence topic of the stimulus (*the place we go*) is not mentioned, and the conversation continues around the general discourse topic of going to the mall, whereas in the incorrect answer (8b), the conversation continues around the topic of the stimulus (*the place we go*).

2.1. Method

2.1.1. Materials

We collected 45 tokens of LD and SM functioning in the realm of discourse management: 22 tokens of LD, functioning as an opening move, and 23 tokens of SM, functioning as a sustaining move. These 45 tokens were all taken from the SBCSAE, Parts 1–4. These experimental stimuli were presented both visually and auditorily. The auditory stimuli were excerpts taken from the sound files of the SBCSAE, and thus the authentic sound was retained. The subjects in the experimental group could read and listen to each test sentence as many times as they wanted. Along with each sentence, there appeared on the screen two optional continuations of the conversation (a) and (b). The correct answers were pseudo-randomly ordered under the constraint that neither (a) nor (b) would occur more than three times consecutively. The subjects had to circle their choices of (a) or (b), on a separate piece of paper.

The test items were presented in two separate blocks: a block of 22 LD items, and a block of 23 SM items. In order to control for phenomena such as nervousness at the beginning of the session, or fatigue towards the end, half of the subjects answered the LD items first, and the other half answered the SM items first. In addition, the test items within each block were serially ordered in two different versions. This way, serial position effects were counterbalanced across subjects. An anonymous reviewer of this paper has argued that it is doubtful whether the block-by-block design allowed ordinary and natural processing of the materials. Laboratory settings, however, are not ordinary or natural to begin with. Additionally, our aim was to maximize the effect of each construction.

As noted earlier, in addition to the experimental group, in which all 45 stimuli were tokens of marked sentences, the experiment included also a control group, in which the exact same test items were used, in the same randomized orders, only marked structure had been eliminated from the control stimuli.

2.1.2. Subjects

The experiment included 60 subjects, all native speakers of North American English, ages 18–65. The subjects were divided into two groups (experimental and control): 30 people in each group.

2.1.3. Procedure

Each subject sat separately in front of a computer. The subjects could operate the computer independently, in the experimental group, listening to each test sentence as many times as necessary, and in both groups (experimental and control), reading as many times as necessary and spending as much time as desired on each of the 45 items.

Before the beginning of the actual test, the subjects were told that they would be presented with sentences taken from real-life conversations, followed by two possible continuations, also taken from the same authentic conversation. It was explicitly stressed that both answers were authentic, taken from the same corpus as the stimulus. The subjects were in-

⁸ The control test sentence equivalent to example (7) was *They just haven't been disciplined enough*, and in the bubble it said "They" refers to horses at college.

⁹ The control test sentence equivalent to example (8) was *It's in the pyramid area, where they have kinda like a food court*, and in the bubble it said "It" refers to a place Cindy goes to.

structed to use their intuitions as native speakers of English in order to identify the answer (a/b) that seemed to them to have originally come immediately after the stimulus in the actual conversation. They were asked to circle their answers on a separate piece of paper.

According to Schütze (1996, p. 188) the specific wording of the instructions in tasks of linguistic judgment can have a crucial influence on subjects' performance. Therefore he argues that instructions should be specific, accompanied by *dos* and *don'ts* of factors that are relevant and others that are not. Accordingly, the subjects were explicitly told to ignore aspects such as punctuation, capital letters, and grammar, as the experiment was on naturally occurring spoken language, and therefore grammaticality issues were completely irrelevant. In addition, the subjects were instructed to focus on the flow/development of the conversation, and encouraged to base their answers on their intuitions as native speakers of English. In order to ensure that subjects paid attention to the development of the conversation, the subjects were instructed to read (and listen to) each stimulus followed by (a), and then *read (and listen to) each stimulus again*, this time followed by (b). Finally, before the subjects began the actual test, two example items were answered by the experimenter, and then the subject was given four practice items to answer him/herself, with the experimenter providing the correct answer after the subject had made his/her call.

2.2. Results and discussion

The percent of correct answers was computed separately across participants, summing over test items, and across items, summing over participants. Table 1 presents the means of the experimental groups of (+) marked LD and SM sentences, and the equivalent means of the control groups of (-) marked LD and SM sentences. In addition, the table also presents the standard deviations, both across subjects and across items for each of the sentence types.

An analysis of these results indicates that the differences between the means of the experimental and control groups, both for LD and for SM were significant with the subjects as the random variable (for LD, $t(58) = 2.95$, $p < .05$; for SM, $t(58) = 2.50$, $p < .05$). In other words, we see that as predicted, both in (\pm)LD sentences and in (\pm)SM sentences, subjects answered significantly better when the sentences were marked, than when the sentences were unmarked. This indicates that marked sentence structure in its appropriate context facilitates people's comprehension of the text. Without markedness, in contexts where markedness is warranted, the pragmatic function is less clear, and people find it significantly harder to reconstruct a coherent development of discourse.

However, with the items as the random variable, significance was reached only for the LD sentences ($t(42) = 2.49$, $p < .05$), whereas in the case of SM, the difference between the experimental and the control sentences was not reliable ($t(44) = 1.05$, $p > .05$). As can be inferred from Table 1, this is probably due to the large variance for (\pm) SM sentences. We may conclude from this that LD sentences form a much more homogeneous group than do SM sentences, and thus the pragmatic function of LD as an opening move is more robust than is the pragmatic function of SM as a sustaining move.

This finding actually exemplifies nicely the phenomenon of iconicity between form and function (Battistella, 1990, p. 110, Waugh and Lafford, 2000, p. 273): the more prominent the structure, the more robust its pragmatic function. In the introduction, it was noted that LD is marked both morpho-syntactically and prosodically, whereas SM is marked only prosodically. Thus, we believe it is more than mere coincidence that across items, only the results of LD, but not the results of SM, were reliable in the realm of discourse management, since LD is indeed more prominently marked than is SM. The same idea of iconicity between form and function is exemplified also in the results of Part II, which looks at the discourse content functions of the three constructions.

3. Part II – discourse content

In Netz and Kuzar (2007) it is argued that the three marked topic constructions – LD, SM, and OF – function in the realm of discourse content, typically used to signify logical relations that exist between referents in the text. This claim is tested in the following experiment.

The design of Part II is very similar to the design of Part I. Once again subjects were presented with authentic stimuli and instructed to identify the original continuation. In all three sentence-types, the correct choice was the second half of a logical relation, which had been opened by the stimulus. That is, the stimulus and the original continuation put together create a clearly defined unit, which expresses a relation between referents. Let's look first at an example of LD fulfilling this pragmatic function:

- (10) (*A meeting between a young woman, Rickie, and her attorney, Rebecca. Rickie is filing a complaint of sexual harassment*):
- Rickie: The very first time I reported,
it was just like this .. dirty old man,
just that that,
- Rebecca: Yeah.
- Rickie: a. And this time, it was during the summer and there was lots
of kids.
- Rickie: b. One of the detectives called me and then I made a report.¹⁰

¹⁰ The control test sentence equivalent to example (9) was *It was just like this dirty old man [...]*, and in the bubble it said "It" refers to the 1st time Rickie reported.

Table 1

Part I – mean scores and standard deviations.

	Experimental (+) marked mean score	Std. deviation	Control (-) marked mean score	Std. deviation	T
(±)LD	85.9%	Across subjects: 7.8 Across items: 12.5	77.3%	Across subjects: 13.9 Across items: 10.3	*2.95 *2.49
(±)SM	66.4%	Across subjects: 8.2 Across items: 19.3	59.9%	Across subjects: 11.7 Across items: 22.6	*2.50 ns

* $p < .05$.

We see that the correct answer (9a) expresses a logical relation of contrast between the topic of the LD (*The very first time I reported*) and the topic of the continuation (*this time*). In contrast, the incorrect answer (9b) develops the general discourse topic (*making a report*). Note that in LD we had to make sure the incorrect answer did not develop the sentence topic of the stimulus, because if it had, then that would have actually been a possible continuation of LD as an opening move. Next let's look also at SM as a discourse content device:

- (11) (A group of friends talking about AIDS):
Miles: ... 90% of gay men,
 ... are HIV positive.
Miles: a. And 50% of all males are HIV positive.
Miles: b. They feel that sooner or later they'll come down with the actual disease.¹¹

We see that the correct answer (10a) expresses a logical relation between the topic of the SM (*90% of gay men*) and the topic of the continuation (*50% of all males*). In contrast, the incorrect answer (10b) develops the topic of the SM construction (*90% of gay men*). Note that in this case we had to make sure that the incorrect answer developed the specific sentence topic, rather than the general discourse topic, because the latter would have been a possible continuation of SM as a sustaining move.

Finally, let's look at OF creating a logical relation of contrast:

- (12) (Two sisters [Alina and Lenore] gossiping):
Alina: .. Joy I like.
 ...Cause she's really interesting.
Alina: (a) But a lot of those other paddlers are idiots.
Alina: (b) One of the things she did was she kind of took up guitar at 12?¹²

Once again the correct answer (11a) expresses a contrastive relation between the topic of the OF (*Joy*) and the topic of the continuation (*a lot of those other paddlers*). In contrast, the incorrect answer (11b) develops the sentence topic of the stimulus (*Joy*). Note, however, that in OF, the incorrect answer could develop either the sentence topic of the stimulus, or the general discourse topic, because OF functions only as a discourse content device, and not as a discourse management device.

3.1. Method

3.1.1. Materials

We collected 40 tokens of LD, SM, and OF, operating in the realm of discourse content, as signifiers of logical relations: 13 tokens of LD, 14 tokens of SM, and 13 tokens of OF. The LD and SM stimuli were all taken from the SBCSAE, Parts 1–4. However, in the case of OF, the small number of occurrences of the construction in the SBCSAE required that we turn to additional sources.¹³ Consequently 3 of the 13 tokens of OF were taken from the Michigan Corpus of Academic Spoken English (MICASE) (Simpson et al., 2002), which is also a corpus of naturally occurring speech. As in Part I of the experiment, the experimental stimuli were presented both visually and auditorily, and the audio files were of authentic speech. Once again, the subjects were presented with two optional continuations of the conversation (a) and (b). These continuations were taken from the same corpus as the stimulus; that is, in LD and SM, the continuations were taken from the SBCSAE, and in OF, the continuations were either from the SBCSAE or from MICASE. As in Part I, the correct answers were pseudo-randomly ordered under the constraint that neither (a) nor (b) would occur more than three times consecutively.

In addition, the test items were presented in three blocks, according to sentence type. The blocks were presented in three different orders: (1) LD, SM, OF; (2) SM, OF, LD; and (3) OF, LD, SM. Moreover, the test items within each block were serially ordered in three different versions. Finally, Part I and Part II of the experiment actually constituted a single session for each

¹¹ The control test sentence equivalent to example (10) was *They're HIV positive*, and in the bubble it said "*They*" refers to 90% of gay men.

¹² The control test sentence equivalent to example (11) was *I like her, cause she's really interesting*, and in the bubble it said "*her*" refers to Joy.

¹³ As already noted, altogether, there were 34 occurrences of OF in the SBCSAE, Parts 1–4. However, many of these tokens were not suitable for the current experiment, either because the second half of the logical relation was only implied, but not made explicit, or because the OF construction was itself the closing of such a relation, rather than the opening. For further discussion of such uses of OF see Taglicht (1984, p. 47) as well as Netz and Kuzar (2007, p. 327).

participant. In order to control for effects such as nervousness at the beginning or fatigue in the end, half of the subjects completed Part I first, and the other half completed Part II first. In addition, a 15–20 min break was given in-between the two parts.

As in Part I, here too, in addition to the experimental group, in which all 40 stimuli were tokens of marked sentences, the experiment included also a control group, in which the exact same test items were used, in the same randomized orders, only marked structure had been eliminated from the control stimuli.

3.1.2. Subjects

The same 60 subjects of Part I, divided into the same two groups of 30 (experimental and control), participated also in Part II.

3.1.3. Procedure

The exact same procedure as in Part I was repeated in Part II. Instructions were the same as described in Part I.

3.2. Results and discussion

Table 2 presents the means of the experimental groups of (+) marked LD, SM, and OF sentences, and the equivalent means of the control groups of (–) marked sentences. In addition, the table also presents the standard deviations, both across subjects and across items for each of the sentence types.

We see that in Part II, as in Part I, across subjects, the means of all three experimental groups were significantly greater than were the means of the equivalent control groups (for LD, $t(58) = 2.36$, $p < .05$; for SM, $t(58) = 6.49$, $p < .05$; for OF, $t(58) = 4.44$, $p < .05$). In other words, as predicted, marked sentence structure had a facilitative effect on people's understanding of the discourse. Subjects could comprehend the logical relation presented in the text more easily when the sentences were marked than when the sentences were unmarked.

However, with the items as the unit of analysis, the picture was once again more complicated. Only in OF was the mean of the experimental sentences significantly greater than was the mean of the control sentences ($t(24) = 2.71$, $p < .05$). In contrast, both in LD and in SM, the item analysis did not yield reliable results (for LD, $t(24) = 0.8$, $p > .05$; for SM, $t(26) = 1.79$, $p > .05$). It seems that in the item analysis of LD and SM, although the mean differences are in the predicted direction, the variance of responses within each group of items were too large for the statistical test to yield reliable results.

However, as in Part I, here too, it is interesting to note that the item analysis that has in fact yielded reliable results is that of OF – the construction that is, as pointed out in the introduction, pragmatically, distributionally, and often also structurally the most prominently marked. That is, we have noted that OF is structurally marked by word-order and often also by prosody. In addition, OF is by far the least frequent of the three constructions. Finally, in contrast to LD and SM, OF functions only in the realm of discourse content. Consequently, the pragmatic function of OF is more robust than is that of LD and SM, leading to more homogeneous responses, such that across items, only OF reached significance.

4. Parts I and II – general discussion

It is important to note that across subjects, the results were significant in all types of sentences, both in Part I and in Part II. This means that marked sentence structure in its appropriate context has a facilitative effect on people's understanding of discourse, at least for the discourse segments that appeared in the experiment.

However, as noted earlier, across items, the picture was not as straightforward. It has been hypothesized that this latter finding might be related to the relatively high variances observed across items. If we look at the items themselves, we see indeed that the items fall into three groups. First, there is a group of sentences that subjects failed to answer correctly, regardless of markedness (i.e. with or without the marked structure, subjects could not identify the original continuation). In other words, in these sentences, markedness was to no avail. Then there is a second group of items which subjects succeeded in answering correctly, but again regardless of the question whether the sentences were marked or not. In these latter cases, it seems that the content itself was sufficient, and markedness was redundant. In the third group of items, the subjects indeed failed to answer when the sentences were unmarked, and succeeded when the sentences were marked.

Table 2

Part II – mean scores and standard deviations.

	Experimental (+) marked mean score	Std. deviation	Control (–) marked mean score	Std. deviation	T
(±)LD	81.8%	Across subjects: 9.4 Across items: 22.2	74.1%	Across subjects: 15.1 Across items: 21.8	*2.36 ns
(±)SM	69.8%	Across subjects: 9.5 Across items: 24.0	51.9%	Across subjects: 11.7 Across items: 28.3	*6.49 ns
(±)OF	81.0%	Across subjects: 10.8 Across items: 13.7	64.6%	Across subjects: 17.1 Across items: 16.97	*4.44 *2.71

* $p < .05$.

However, altogether there were too few items (especially in Part II) and variance was too large for the item analysis to yield reliable results.

Finally, it is interesting to note that across items, LD reached significance as a discourse management device, but not as a discourse content device. Since the two parts of the experiment were identical, the subjects did not know what we were manipulating. Nevertheless, the function of LD in each part was different, hence the difference in variance between Part I (12.5) and Part II (22.2). This difference in the results might indicate that LD is more consistently interpreted as an opening move than it is as an expression of a logical relation between referents in the text. This makes sense for two reasons. First, as has already been pointed out by Geluykens (1992, p. 155), LD is much more often used as an opening move than it is as an indicator of logical relations. Secondly, all three constructions can be used as signifiers of logical relations, but out of the three, only LD functions as an opening move. Thus, it stands to reason that the function of LD as a discourse management device is exclusive and therefore reliable, whereas the function of LD in the realm of discourse content is not exclusive and consequently less reliable.

We can therefore conclude that marked sentence structure in its appropriate context facilitates people in their understanding of the development of the discourse. Without the marked structure where markedness is warranted, people find it significantly harder to make sense of the utterance, and to reconstruct the discourse. More specifically, upon encountering an LD, interactants reliably interpret the construction as an opening move on behalf of the speaker. Likewise, upon encountering an OF, interactants reliably interpret the construction as an indicator of logical relations between referents in the discourse. As for the functions of SM as a sustaining move or as a sign of logical relations, it seems that occurrences of SM are too variegated to allow any reliable conclusions. As a final note, we would like to argue that qualitative research of the text itself could not have revealed these subtle differences between the different constructions.

5. Conclusions

The goal of this research was to examine the effect of marked sentence structure on people's perception and comprehension of discourse. The results of the experiment indicate that marked sentence structure has a facilitative effect on comprehension. Thus, we have seen that subjects perform significantly better when stimuli are marked than when stimuli are unmarked. This means that people find discourse more comprehensible when sentences are structurally and functionally marked.¹⁴

More specifically, we have seen that upon encountering the Left-Dislocation construction, people expect discourse to develop specifically about the topic of the construction. This finding reinforces previous claims regarding the function of Left-Dislocation as a 'referent-highlighting' device (Geluykens, 1992, p. 158), a 'topic establishing device' (Gregory and Michaelis, 2001, p. 1670), or an 'opening move' (Netz and Kuzar, 2007).

In addition, we have seen that upon encountering an Object Fronting construction, people expect discourse to offer a completion of the logical relation opened, and marked by the Object Fronting construction.¹⁵ This finding reinforces previous claims that Object Fronting is used in order to trigger an inference of a poset relation between referents in the text (Prince, 1998, p. 292), or to mark logical relations between referents in the text (Netz and Kuzar, 2007, p. 312).

Furthermore, in the discussion of the results we have suggested that the significance of the results of Left-Dislocation in the realm of discourse management, and of Object Fronting in the realm of discourse content, as well as the insignificance of the results of Subject Marking across items in both realms, is meaningful. Presumably, these results illustrate the iconicity between form and function: the more prominent the structure, the more robust its pragmatic function.

Perhaps the most significant contribution of this research is in the innovative attempt at studying the pragmatics of authentic discourse in the lab. Indeed, other psycholinguistic studies have examined the relation between sentence structure and cognition. However, these previous studies have relied on constructed language. In contrast, the current research makes use of authentic data. The motivation behind this decision stems from our belief that it is in naturally occurring discourse that the full potential of language is best manifested and observed. Therefore, we believe that empirical research which is based solely on constructed language is limited in its ability to accurately reflect processes of language perception and comprehension.

Another significant contribution of the current research is the integration between qualitative linguistic analyses and quantitative psycholinguistic methods. Indeed the current research has revealed subtle effects of marked sentence structure that could not have been observed through text analysis alone. By following this approach, we have witnessed the actual effects of marked topic constructions on the listeners' comprehension of the text. For example, we have seen that Left-Dislocation is more robust in its function as an opening move than as an indicator of logical relations. Likewise we have seen the

¹⁴ Note that it is by no means argued here that the use of marked topic constructions is the only means for performing discursive moves, such as opening or sustaining a discourse topic, or for signaling relations between referential entities. For example, an opening move is often signaled by a shift in the identity of referents, the use of discourse markers, etc. This is part of the reason why the control group was able to identify the original continuation better than chance. However, as has been shown, subjects answered significantly better when stimuli were marked rather than unmarked, and therefore we can reliably conclude that the contribution of marked sentence structure to people's understanding of the discourse is significant.

¹⁵ Prince (1998, pp. 292–293) argues that one function of OF is to evoke an open proposition, in which the initial NP is marked as given. We have not found any instances of this function used in our corpora.

effect of the degree of markedness on people's comprehension of the pragmatic function. All of these are phenomena that had not been made explicit in previous text analyses.

Admittedly, these innovative directions also entail certain shortcomings. First and foremost, the use of authentic speech in the lab is challenging. It creates a clash between the wish to retain authenticity on the one hand, and the need to manipulate variables and to isolate the test variable on the other. Consequently, several compromises have had to be made, and control items could not be purely authentic. Without this compromise, the whole enterprise of incorporating naturally occurring speech in an experimental setting could never get off the ground.

Despite these complications, we believe the results of the experiment are highly important for the field of pragmatics. First, the study is important since it reveals the impact of syntactic constructions on the listeners. Thus, the study indicates that marked sentence structure is not only a device *used by speakers*, it is also a cue *picked up by listeners* in their attempt to make sense of the discourse. Secondly, the study makes an important methodological contribution to the field of pragmatics, by combining naturally occurring utterances and laboratory experimentation. Methodological innovations are not easily accepted. However, making significant strides in research requires open-mindedness and flexibility. We hope pragmatists will make use of this study, by critiquing and attempting to further minimize its limitations and by enhancing its strengths, in order to further explore and develop the integration between qualitative analysis of discourse and quantitative psycholinguistic experimentation.

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