6 Discourse and Information Structure

GREGORY WARD AND BETTY J. BIRNER

0 Introduction

In addition to deciding what to say, speakers must decide how to say it. The central premise of studies on the relationship between syntax and discourse function is that a speaker's use of a particular structural option is constrained by specific aspects of the context of utterance. Work in discourse has uncovered a variety of specific discourse functions served by individual syntactic constructions.[1] More recently, in Birner and Ward (1998) we examine generalizations that apply *across* constructions, identifying ways in which a given functional principle is variously realized in similar but distinct constructions.

1 Theoretical Framework

English, like many other languages, shows a tendency to order "given" information before "new" information in an utterance. Indeed, Prince (1981a: 247) posits a "conspiracy of syntactic constructions" designed to prevent NPs that represent relatively unfamiliar information from occupying subject position (see also Kuno 1971, inter alia). Chafe (1976) defines given information as "that knowledge which the speaker assumes to be in the consciousness of the addressee at the time of the utterance," while new information is defined as "what the speaker assumes he is introducing into the addressee's consciousness by what he says" (1976: 30). Other notions of given information have relied on such notions as predictability and shared knowledge, or assumed familiarity (see Prince 1981a). In reviewing the literature on givenness in discourse, Prince (1992) finds that three basic approaches may be distinguished, which she terms focus/presupposition, hearer-old/hearer-new, and discourse-old/discourse-new. Along similar lines, Lambrecht (1994) identifies three categories of "information structure" (Halliday 1967): presupposition and assertion (the structuring of propositional information into given and new); identifiability and activation (the information

status of discourse referents); and topic and focus (the relative predictability of relations among propositions).

1.1 *Focus/Presupposition*

Although the term *focus* means different things to different people, we will use it here to refer to that portion of an utterance that represents new information, i.e. just that portion which augments or updates the hearer's view of the common ground (Vallduví 1992). A focused constituent is realized intonationally with some kind of prosodic prominence, generally unclear accent. **Presupposed** information is the complement of focus: it represents the information that the speaker assumes is already part of the common ground, i.e. either salient or inferable in context. A **presupposition** is a proposition that is presupposed in this way.

Because utterances are intended to be informative, the presupposition typically does not exhaust the information in the utterance; instead, the proposition being presupposed is "open" – that is, lacking certain information. Such a proposition is represented with a variable in place of one or more constituents. For example, the utterance in (1a) would give rise to the presupposed open proposition (OP) in (1b), in the sense that a person hearing (1a) would immediately thereafter be licenced to treat (1b) as part of the common ground:

(1) a. Pat brought those cookies to the BBQ.
 b. Pat brought X to the BBQ.

Although only a single word, or syllable, of the focus bears nuclear accent, the focus itself can be indefinitely large; consider (2):

(2) Pat brought a bag of those yummy cookies from Treasure Island to the BBQ.

In a context in which the speaker has been asked *What did Pat bring?*, the focus in (2) would be *a bag of those yummy cookies from Treasure Island*.

It is also possible for a clause to have more than one focus, as in the exchange in (3):

(3) *A*: Who brought what to the BBQ?
 B: Pat brought cookies.

The presupposition in this case is *X brought Y*, and *Pat* and *cookies* are foci. Notice that *Pat* need not represent entirely new information in order to count as new in this context. Even if Pat is salient in the discourse, *Pat* here is new as an instantiation of the variable in the presupposition. In effect, to say that *Pat* represents new information in this way is to say that the proposition *Pat brought cookies* is (believed to be) absent from the hearer's mental store of propositions, despite the presence of the proposition *X brought Y*.

Not all utterances involve presuppositions; for example, (2) may felicitously be uttered in a context in which it is not presupposed that anyone brought anything. In such a context, the entire utterance may be considered the focus (often called "broad focus").

1.2   *"New to the discourse" vs. "new to the hearer"*

Noting that a two-way division of information into given and new is inadequate, Prince (1992) offers a pair of cross-cutting dichotomies which classify information as, on the one hand, either "discourse-old" or "discourse-new" and, on the other hand, either "hearer-old" or "hearer-new." Discourse-old information is that which has been evoked in the prior discourse, while hearer-old information is that which the speaker believes to be present within the hearer's knowledge store.[2] This distinction captures the fact that what is new to the discourse need not be new to the hearer (cf. Firbas 1966; Chafe 1976; Lambrecht 1994); that is, an entity may be familiar to the hearer yet new to the discourse.

   Thus, consider a simple discourse-initial utterance such as (4):

(4)   Last night the moon was so pretty that I called a friend on the phone and told him to go outside and look.

Here, *the moon* represents information that is discourse-new but hearer-old, denoting an entity that has not been evoked in the prior discourse but which can be assumed to be known to the hearer; *a friend* represents information that is both discourse-new and hearer-new, having not been previously evoked and also being (presumably) unknown to the hearer; and *him* represents information that is discourse-old and (therefore) hearer-old, having been explicitly evoked in the previous clause (as *a friend*). The status of what Prince calls "inferable" information (e.g. *the phone* in (4), since people are typically assumed to have telephones) is left unresolved in Prince (1992) and will be discussed below.

   Constructions vary not only with respect to whether they are sensitive to discourse-familiarity or hearer-familiarity, but also with respect to whether they are sensitive to "absolute" or "relative" familiarity; the felicitous use of one construction may require that a certain constituent represent discourse-old information (an absolute constraint), while the felicitous use of another may require only that a certain constituent represent *less* familiar information within the discourse than does another constituent (a relative constraint). Thus, there exist three interacting pragmatic dimensions along which constructions can vary: old vs. new information, discourse- vs. hearer-familiarity, and relative vs. absolute familiarity. Moreover, in both preposing and inversion, the preposed constituent represents a discourse-old "link" (Reinhart 1981; Davison 1984; Fraurud 1990; Vallduví 1992; Birner and Ward 1998; inter alia) standing in a specific type of relation to information evoked in the prior context.[3] The range of relations that support this linking will be discussed next.

1.3   *Linking relations*

We will argue that the discourse-old link in a given utterance is related to previously evoked information via a partially ordered set, or **poset**, relationship.[4]

   Two elements, A and B, that co-occur in a poset can be related to each other in one of three possible ways, in terms of their relative rank: A can represent a lower value than does B, A can represent a higher value than does B, or the two can be of equal

rank, or "alternate values" sharing a common higher or lower value but not ordered with respect to each other:

(5) a. **Lower value**
G: Do you like this album?
M: Yeah, *this song I really like*. (M. Rendell to G. Ward in conversation)
b. **Higher value**
C: Have you filled out the summary sheet?
T: Yeah. *Both the summary sheet and the recording sheet I've done*. (T. Culp to C. Wessell in conversation)
c. **Alternate values**
G: Did you get any more [answers to the crossword puzzle]?
S: No. *The cryptogram I can do like that*. The crossword puzzle is hard. (S. Makais to G. Ward in conversation)

In (5a), the relation "is-a-part-of" orders the poset {album parts}, within which *this song* represents a lower value than does *this album*, since "this song" is a part of "this album." In (5b), *the summary sheet and the recording sheet* represents a higher value than does *the summary sheet* within the poset {forms}, ordered by "is-a-member-of" relation; that is, "the summary sheet and the recording sheet" is a superset of "the summary sheet."[5] Finally, in (5c), *the crossword puzzle* and *the cryptogram* represent alternate, equally ranked values within the poset {newspaper puzzles}, ordered by the relation "is-a-type-of."

An element in a poset may be associated with an entity, attribute, event, activity, time, or place, or with a set of such items (Ward and Hirschberg 1985; Ward 1988; Hirschberg 1991; Ward and Prince 1991). Examples of poset relations include not only scales defined by entailment (Horn 1972), but also a much broader range of relations, including the part/whole, entity/attribute, type/subtype, set/subset, and equality relations.

The **link** within an utterance is the linguistic material representing information which stands in a contextually licenced poset relation with information evoked in or inferable from the prior context, and serves as a point of connection between the information presented in the current utterance and the prior context. (See also Reinhart 1981; Davison 1984; Fraurud 1990; Vallduví 1992; and Birner and Ward 1998; inter alia.)

By a "contextually licenced" poset relation we mean a relation involving a poset that the speaker believes the hearer can construct or retrieve from his or her knowledge store based on the information evoked in the current discourse. This constraint is designed to restrict these posets to those that are salient or inferable in context, since in principle any random set of items could constitute a poset, yet most such combinations will not licence linking relations between utterances and their contexts:

(6) a. I walked into the kitchen. *On a/the counter was a large book.*
b. I walked into the kitchen. *#On a/the jacket was a large book.*

In (6a), the inversion is licenced by the fact that the hearer may readily retrieve a culturally available poset containing both "kitchen" and "counter" – specifically, the

poset {elements of a house}, ordered by the relation part-of, with "counter" representing a lower value than does "kitchen" (since a counter is part of a kitchen). In (6b), on the other hand, there exists no salient or inferable poset relating "kitchen" and "jacket"; hence, this poset is not contextually licenced.

We will refer to the poset relating the link and the prior context (in (6), {elements of a house}) as the **anchoring set**, or **anchor**. The relation between the link and the anchor, which we will refer to as the **linking relation** (cf. Strand 1996a), is always a poset relation. The relation between the anchor and the prior context, however, is not always a poset relation. Consider (7):

(7) a.   I promised my father – *on Christmas Eve it was* – to kill a Frenchman at the first opportunity I had. (*The Young Lions*)
     b.   She got married recently and *at the wedding was the mother, the stepmother and Debbie*. (E. B. in conversation)

In (7a), the link is *on Christmas Eve*. The prior context (*I promised my father*) renders inferable the notion that this promise was made at some time, which in turn licences the anchor {times}. This anchor stands in a poset relation with set member *Christmas Eve*. However, the anchoring poset {times} does not stand in a poset relation to the prior context; that is, *I promised my father* itself does not stand in a poset relation with the set {times}. Similarly, in (7b), mention of someone getting married renders inferable the anchor {the wedding}. Notice that here the linking relation that holds between the link and the anchor is one of identity, which is also a poset relation. That is, the link *the wedding* stands in the identity relation with the anchor {the wedding}.

We will call the linguistic or situational material that licences the inference to the anchor the **trigger** (Hawkins 1978).[6] As we have seen, this inference may be based on a poset relation (as in (6a)), but it need not be (as in (7)). The inference may be triggered by one or more items, one of which may be the link itself. Thus, in (6a), mention of *the kitchen* alone does not give rise to the poset {elements of a house}, since, if it did, every utterance of an NP would give rise to a cognitive explosion of instantaneously constructed part/whole relations in which the referent participates (Fraurud 1990). Rather, it is not until the speaker utters *on the counter* that mention of the kitchen and the counter combine to evoke the poset that relates the two.

Notice, finally, that it is entirely possible for the trigger, anchor, and link to all represent the same information, as in (8):

(8) On one of September's last blast-furnace days, Emil Peterson parked his car along a quiet street in the tiny Delaware County burg of Eddystone and pulled a yellow plastic bucket from the back seat. *In it he had expertly wedged an assortment of brushes and cans of cleanser, a hollyberry room deodorizer, knives, scissors, a couple of no-slip no-crease pants hangers and a box containing a boulder-sized zircon ring*. (*Philadelphia Inquirer*, October 2, 1983)

Here, the trigger *a yellow plastic bucket* evokes a singleton set containing the bucket as its only member. This set is the anchor, which in turn is related (trivially) to the link *it* via a linking relation of identity.[7] Thus, even cases where the machinery of posets

and linking relations may not seem necessary are nonetheless consistent with this account, allowing the development of a unified theory.

With these theoretical primitives in hand, we can now proceed to see how they apply to some of the noncanonical constructions of English. Our analysis is based on a combined corpus consisting of several thousand naturally occurring tokens collected over a period of approximately ten years. The data can be described as more or less standard American English and were drawn from a wide range of sources. Whenever possible, the prior and subsequent context was noted for each token. Data were collected from both speech and writing; the written sources include newspapers, magazines, novels, nonfiction books, academic prose, and portions of the Brown Corpus (Kucera and Francis 1967). Spoken data were drawn from personal conversations, films, interviews from *Working* (Terkel 1974), transcripts of the 1986 Challenger Commission meetings,[8] and a variety of television and radio programs.

2   Preposing

As we use the term, a "preposing" is a sentence in which a lexically governed phrasal constitutent appears to the left of its canonical position, typically sentence-initially (Ward 1988).[9] Extending the theory of preposing presented in Ward (1988), we claim that felicitous preposing in English requires the referent or denotation of the preposed constituent to be anaphorically linked to the preceding discourse (see Prince 1981b, 1984; Reinhart 1981; Vallduví 1992). The information conveyed by the preposed constituent can be related to the preceding discourse in a number of ways, including such relations as type/subtype, entity/attribute, part/whole, identity, etc. These relations can all be defined as partial orderings, and in Ward (1988) it is argued that the range of relations that can support preposing are all poset relations:

(9) *Customer*: Can I get a bagel?
     Waitress: No, sorry. We're out of bagels. *A bran muffin I can give you*. (service
                  encounter)

Here, the link (*a bran muffin*) and trigger (*bagels*) stand in a poset relation as alternate members of the inferred anchor set {breakfast baked goods}. The link could also have been explicitly mentioned in the prior discourse, as in (10):

(10) *A*: Can I get a bagel?
      B: Sorry – all out.
      A: How about a bran muffin?
      B: *A bran muffin I can give you*.

Here, although the link *a bran muffin* is coreferential with the trigger explicitly evoked in A's second query, the salient linking relation is not identity. Rather, the link is related via a type/subtype relation to the anchoring set {breakfast baked goods}, of which both bagels and bran muffins are members. Some types of preposing also permit links to anchors with a single member:

(11) Facts about the world thus come in twice on the road from meaning to truth: once to determine the interpretation, given the meaning, and then again to determine the truth value, given the interpretation. *This insight we owe to David Kaplan's important work on indexicals and demonstratives, and we believe it is absolutely crucial to semantics.* (Barwise and J. J. Perry 1983: 11. *Situations and Attitudes* (p. 11). Cambridge, MA: MIT Press).

Here, the link *this insight* stands in a relation of identity to the anchoring poset, consisting of a single member.

In addition, Ward (1988) shows that certain types of preposing constructions require a salient or inferable open proposition in the discourse (see also Prince 1981b, 1984). The variable in the OP is instantiated with the focus, which must be a member of a contextually licenced poset. Preposings can be classified into two major types based on their intonation and information structure: "focus preposing" and "topicalization." The preposed constituent of focus preposing contains the focus of the utterance, and bears nuclear accent; the rest of the clause is typically deaccented.[10] Topicalization, on the other hand, involves a preposed constituent *other than the focus* and bears multiple pitch accents: at least one on the preposed constituent and at least one on the (nonpreposed) focus.[11] Nonetheless, both types of preposing require a salient or inferable OP at the time of utterance for felicity.[12]

Consider first the focus preposing in (12), where the focus is contained within the preposed constituent:

(12) *A*: Where can I get the reading packet?
    B: In Steinberg. [Gives directions] *Six dollars it costs.* (two students in conversation)

The preposed constituent in this example, *six dollars*, contains the nuclear accent, which identifies it as the focus of the utterance:

(13) OP = It costs X, where X is a member of the poset {prices}.
    "It costs some amount of money."
    Focus = six dollars

Here, *six dollars* serves as the link to the preceding discourse. Its referent is a member of the poset {prices}, which is part of the inferable OP in (13). The OP can be inferred on the basis of the prior context; from mention of a reading packet, one is licenced to infer that the packet costs some amount of money. While the anchoring poset {prices} is discourse-old, the preposed constituent itself represents information that has not been explicitly evoked in the prior discourse. In the case of focus preposing, then, since the anchoring poset must be discourse-old yet the link is the focus (and therefore new), it follows that the poset must contain at least one other member in addition to the link.

The focus in a topicalization, on the other hand, is not contained in the preposed constituent but occurs elsewhere in the utterance. Intonationally, preposings of this type contain multiple accented syllables: (at least) one occurs within the constituent that contains the focus and (at least) one occurs within the preposed constituent,

which typically occurs in a separate "intonational phrase" (Pierrehumbert 1980). Consider (14):

(14)   G: Do you watch football?
       E: Yeah. *Baseball I like a lot better*. (G. McKenna to E. Perkins in conversation)

Here, the preposed constituent *baseball* is not the focus; *better* is. *Baseball* serves as the link to the inferred poset {sports}. This poset constitutes the anchor, and can be inferred on the basis of the link (*baseball*) and the trigger *football*. Note that *baseball* is accented in (14) not because it is the focus but because it occurs in a separate intonational phrase.

   The OP is formed in much the same way as for focus preposing, except that the poset member represented by the preposed constituent is replaced in the OP by the anchoring poset, as in (15):[13]

(15)   OP = I like-to-X-degree {sports}, where X is a member of the poset {amounts}.
       I like sports to some degree.
       Focus = better

Here, the OP includes the variable corresponding to the focus, but note that the link *baseball* has been replaced by its anchoring set {sports}, i.e. the poset that includes both the trigger and the link. In other words, the OP that is salient in (14) is not that the speaker likes baseball per se, but rather that he likes sports to some degree, as indicated in (15).

3   Postposing

As used here, the term "postposing" denotes any construction in which a lexically governed phrasal constituent appears to the right of its canonical position, typically but not exclusively in sentence-final position, leaving its canonical position either empty or else occupied by an expletive (Birner and Ward 1996). The postposing constructions we will concentrate on are those in which the logical subject is postposed and the expletive *there* appears in the canonical subject position – i.e. what have traditionally been known as existential and presentational *there*-sentences, as in (16a) and (16b), respectively:

(16)   a.   "*There's a warm relationship, a great respect and trust*" between [United Air Lines]'s chairman, Stephen M. Wolf, and Sir Colin Marshall, British Air's chief executive officer, according to a person familiar with both sides. (*Wall Street Journal*, August 23, 1989)
       b.   *Not far from Avenue de Villiers there lived a foreign doctor, a specialist, I understood, in midwifery and gynecology.* He was a coarse and cynical fellow who had called me in consultation a couple of times, not so much to be enlightened by my superior knowledge as to shift some of his responsibility on my shoulders. (Munthe, A. 1929: 143. *The Story of San Michele*. London: John Murray)

Existential *there*-sentences, as in (16a), contain *be* as their main verb, whereas presentational *there*-sentences, as in (16b), contain some other main verb.[14]

We have shown that preposing requires that the marked constituent represent information that is "given" in the sense of being discourse-old; postposing, on the other hand, requires its marked constituent to represent information that is "new" in some sense, although the type of newness in question will be shown to vary by construction.

We will argue that, while each of these two sentence types requires the postverbal NP (PVNP) to represent information that is unfamiliar in some sense, they differ in the nature of this unfamiliarity – specifically, whether the information must be (believed to be) new to the discourse or new to the hearer.

3.1   *English existential* **there-***sentences*

As noted by Prince (1988, 1992) and Ward and Birner (1995), the postverbal NP of existential *there*-sentences is constrained to represent entities that the speaker believes are not familiar to the hearer:

(17)   What can happen is a hangup such as Rocky Smith ran into, as the independent hauler was traversing Chicago with a load of machinery that just had to get to a factory by morning. *"There was this truck in front of me carrying giant steel coils, and potholes all over the place,"* he remembers. (*Wall Street Journal*, August 30, 1989)

Here, the truck in question is hearer-new, being introduced to the reader for the first time.

On the other hand, hearer-old PVNPs produce infelicity:[15]

(18)   a.   I have some news you're going to find very interesting. #*There was on the panel your good friend Jim Alterman.*
       b.   President Clinton appeared at the podium accompanied by three senators and the Speaker of the House. #*There was behind him the vice president.*

The PVNPs in these examples represent entities that are new to the discourse, but presumably familiar to the hearer, and the existential *there*-sentences are unacceptable. Now consider *there*-sentences whose PVNPs are not only hearer-old but also discourse-old:

(19)   a.   *A*:   Hey, have you heard from Jim Alterman lately? I haven't seen him for years.
             B: Yes, actually. #*There was on the panel today Jim Alterman.*
       b.   President Clinton appeared at the podium accompanied by three senators and the vice president. #*There was behind him the vice president.*

As predicted, such examples are infelicitous. Thus, whenever an NP represents a hearer-old entity, it is disallowed in the postverbal position of an existential *there*-sentence.

3.2   *English presentational* **there-***sentences*

Unlike existential *there*-sentences, presentational *there*-sentences are sensitive to the discourse-status of the PVNP. In the vast majority of cases, the referent of the PVNP in a presentational *there*-sentence is both hearer-new and discourse-new, as in (20):

(20)   And so as voters tomorrow begin the process of replacing Mr. Wright, forced from the speaker's chair and the House by charges of ethical violations, *there remains a political vacuum in the stockyards, barrios, high-tech workshops and defense plants of Tarrant County.* (AP Newswire 1989)

In the news story from which this example is taken, the PVNP is the first reference to the political vacuum in question and can be assumed to represent a new entity to the readership.

However, the PVNP of presentational *there*-sentences may also represent a hearer-old referent:

(21)   a.   *There only lacked the moon*; but a growing pallor in the sky suggested the moon might soon be coming. (adapted from Erdmann 1976: 138)
       b.   *Suddenly there ran out of the woods the man we had seen at the picnic*. (= Aissen 1975: ex. 12)

In these examples, the referent of the PVNP is one that is familiar to the hearer, yet new to the discourse. Thus, while both types of *there*-sentences allow hearer-new, discourse-new PVNPs, they do so for different reasons: existential *there*-sentences require hearer-new PVNPs, while presentational *there*-sentences require discourse-new PVNPs.

As we would predict, presentational *there*-sentences – like existential *there*-sentences – disallow PVNPs representing discourse-old entities:

(22)   a.   *A*:   Hey, have you heard from Jim Alterman lately? I haven't seen him for years.
            B: Yes, actually. #*There appeared before the committee today Jim Alterman.*
       b.   President Clinton appeared at the podium accompanied by three senators and the vice president. #*There stood behind him the vice president.*

Note that both of the presentational *there*-sentences in (22) would be acceptable without prior mention of the PVNP's referent – i.e. with the PVNP representing an entity that is hearer-old but discourse-new.

4   Argument Reversal

While preposing involves the noncanonical leftward placement of a constituent, and postposing involves the noncanonical rightward placement of a constituent, argument

reversal incorporates both. The English argument-reversing constructions we will consider are *by*-phrase passives and inversion. The data indicate that both constructions are subject to the same discourse constraint.

4.1 Inversion

In inversion, the logical subject appears in postverbal position while some other, canonically postverbal, constituent appears in preverbal position (Birner 1994), excluding cases where expletive *there* occupies syntactic subject position (which are both formally and functionally distinct). We will refer to the noncanonically positioned constituents as the "preposed" and "postposed" constituents for convenience, although again we wish to remain neutral with respect to the syntactic analysis of the construction.

As demonstrated in Birner (1994), felicitous inversion in English depends on the "discourse-familiarity" of the information represented by the preposed and postposed constituents, where discourse-familiarity is determined by prior evocation in the discourse, inferability based on the prior discourse, and recency of mention within the discourse. Information that has been evoked in the prior discourse or is inferable based on the prior discourse is discourse-old, while information that has not been evoked and is not inferable is discourse-new (Prince 1992). Among discourse-old information, that which has been mentioned more recently in general is treated as more familiar, in the sense of being more salient, than that which has been mentioned less recently.

In the study reported in Birner (1994), an examination of 1778 naturally occurring inversions showed that in 78 percent of the tokens, the preposed constituent represented discourse-old information while the postposed constituent represented discourse-new information:

(23)   We have complimentary soft drinks, coffee, Sanka, tea, and milk. *Also complimentary is red and white wine*. We have cocktails available for $2.00. (Flight attendant on Midway Airlines)

Here, the preposed AdjP *also complimentary* represents information previously evoked in the discourse, while the postposed *red and white wine* is new to the discourse. There were no tokens in which the situation was reversed – i.e. in which a preposed discourse-new element combined with a postposed discourse-old element. Moreover, information that was merely inferable (Prince 1981a) behaved as discourse-old, occurring in the same range of contexts as explicitly evoked information.

It is not the case, however, that the preposed constituent need always be discourse-old, or that the postposed constituent need always be discourse-new. In 11 percent of the tokens in the corpus, for example, both the preposed and the postposed constituents represented discourse-old information. However, in these cases the preposed element was consistently the more recently mentioned of the two, as in (24):

(24)   Each of the characters is the centerpiece of a book, doll and clothing collection. The story of each character is told in a series of six slim books, each $12.95

hardcover and $5.95 in paperback, and in bookstores and libraries across the country. More than 1 million copies have been sold; and in late 1989 a series of activity kits was introduced for retail sale. *Complementing the relatively affordable books are the dolls, one for each fictional heroine and each with a comparably pricey historically accurate wardrobe and accessories.* (*Chicago Tribune*)

Here, although the dolls have been evoked in the prior discourse, they have been evoked less recently than the books. Switching the preposed and postposed constituents in the inversion results in infelicity:

(25)   Each of the characters is the centerpiece of a book, doll and clothing collection. The story of each character is told in a series of six slim books, each $12.95 hardcover and $5.95 in paperback, and in bookstores and libraries across the country. More than 1 million copies have been sold; and in late 1989 a series of activity kits was introduced for retail sale. #*Complementing the relatively affordable dolls are the books, one for each fictional heroine.*

Thus, even in cases where both constituents have been previously evoked, the postposed constituent nonetheless represents less familiar information, where familiarity is defined by prior evocation, inferability, and recency of mention. Therefore, what is relevant for the felicity of inversion in discourse is the relative discourse-familiarity of the information represented by these two constituents.

4.2   Passivization

Like inversion, English *by*-phrase passives reverse the canonical order of two constituents, and like inversion, they are also constrained pragmatically in that the syntactic subject must not represent newer information within the discourse than does the NP in the *by*-phrase (Birner 1996). We claim that passivization and inversion represent distinct syntactic means for performing the same discourse function in different syntactic environments.

By-phrase passives are passive sentences with a *by*-phrase containing the logical subject, as in (26):

(26)   The mayor's present term of office expires Jan. 1. *He will be succeeded by Ivan Allen Jr.* (Brown Corpus)

This restriction excludes such passives as that in (27):

(27)   A lamp was stolen yesterday.

We will refer to the preverbal NP in a *by*-phrase passive (e.g. *he* in (26)) as the syntactic subject, and to the postverbal NP (e.g. *Ivan Allen Jr.* in (26)) as the *by*-phrase NP.[16]

Based on an examination of the first 200 *by*-phrase passives appearing in the Brown Corpus, Birner (1996) shows that the syntactic subject of such passives consistently

represents information that is at least as familiar within the discourse as that represented by the *by*-phrase NP. Moreover, when the information status of the relevant NPs is reversed, infelicity results. Consider again example (26), repeated here as (28a), as compared with (28b):

(28)   a.   The mayor's present term of office expires Jan. 1. *He will be succeeded by Ivan Allen Jr.* (= (26))
       b.   Ivan Allen Jr. will take office Jan. 1. *#The mayor will be succeeded by him.*

The subject *he* in (28a) represents discourse-old information, while the *by*-phrase NP, *Ivan Allen Jr.*, represents discourse-new information, and the token is felicitous. In (28b), on the other hand, the syntactic subject, *the mayor*, represents discourse-new information while the NP in the *by*-phrase, *him*, represents discourse-old information, and the passive is infelicitous. Thus, the subject NP in a *by*-phrase passive must not represent less familiar information within the discourse than does the NP within the *by*-phrase.

   Given that passivization, like inversion, places relatively familiar information before relatively unfamiliar information, it too can be viewed as performing a linking function (see section 1.3). That is, in passivization as in inversion, the information represented by the preverbal constituent generally stands in a poset relationship with a previously evoked or inferable anchor.

5   Left-dislocation

Left-dislocation is superficially similar to preposing, but in left-dislocation a coreferential pronoun appears in the marked constituent's canonical position:

(29)   I bet she had a nervous breakdown. That's not a good thing. *Gallstones, you have them out and they're out.* But a nervous breakdown, it's very bad. (Roth, P. 1969: 162. *Portnoy's Complaint.* New York: Random House)

Here, the direct object pronoun *them* is coreferential with the sentence-initial constituent *gallstones*. Left-dislocation is also functionally distinct from preposing. As we have seen, preposing constructions constitute a functionally unified class in that the preposed constituent consistently represents information standing in a contextually licenced poset relationship with information evoked in or inferable from the prior context. No such requirement holds for left-dislocation, however.

   Prince (1997) argues that there are three types of left-dislocation (LD), distinguishable on functional grounds. Type I LD is what Prince calls "simplifying LDs":

> A "simplifying" Left-Dislocation serves to simplify the discourse processing of Discourse-new entities by removing them from a syntactic position disfavored for Discourse-new entities and creating a separate processing unit for them. Once that unit is processed and they have become Discourse-old, they may comfortably occur in their positions within the clause as pronouns. (1997: 124)

That is, LDs of this type involve entities that are new to the discourse and would otherwise be introduced in a nonfavored (i.e. subject) position. Consider the example in (30):

(30)   Two of my sisters were living together on 18th Street. They had gone to bed, and this man, their girlfriend's husband, came in. He started fussing with my sister and she started to scream. *The landlady, she went up and he laid her out.* (*Welcomat*, 12 February, 1981)

Here, the landlady is new to the discourse (and presumably to the hearer as well); however, the speaker is introducing her via an NP in subject position – a position disfavored for introducing new information. The dislocated NP creates a new information unit and thus, according to Prince, eases processing. The other two types of LD – triggering a poset inference and amnestying an island violation – typically do, according to Prince, involve discourse-old information.[17] This stands in stark contrast to true preposing constructions, in which the preposed constituent must represent a discourse-old link to the prior discourse.

6   Right-dislocation

Like existential and presentational *there*-insertion, right-dislocation involves the noncanonical placement of an argument of the verb in postverbal position. However, in contrast to both existential and presentational *there*-insertion, right-dislocation (RD) does not require the postverbal NP to represent new information. Consider the right-dislocations in (31):

(31)   a.   Below the waterfall (and this was the most astonishing sight of all), a whole mass of enormous glass pipes were dangling down into the river from somewhere high up in the ceiling! *They really were* ENORMOUS, *those pipes.* There must have been a dozen of them at least, and they were sucking up the brownish muddy water from the river and carrying it away to goodness knows where. (Dahl, R. 1964: 74–5 *Charlie and the Chocolate Factory.* New York: Knopf.)
   b.   Can't write much, as I've been away from here for a week and have to keep up appearances, but did Diana mention the desk drama? Dad took your old desk over to her house to have it sent out, but he didn't check to see what was in it, and forgot that I had been keeping all my vital documents in there – like my tax returns and paystubs and bank statements. Luckily Diana thought "that stuff looked important" so she took it out before giving the desk over to the movers. Phew! *She's a smart cookie, that Diana.* (personal letter)

In each of these examples, the sentence-final constituent represents information that has been evoked, either explicitly or implicitly, in the prior discourse. The functions that previous researchers have posited for RD, in fact, have generally assumed that

the dislocated NP must represent information that is given or inferable within the discourse. For example, Davison (1984) argues that RD marks the referent of the dislocated NP as a topic, and thus also as having a "discourse antecedent" (1984: 802). Similarly, Ziv and Grosz (1994) argue that RD identifies a situationally or textually evoked entity as the most salient entity available for subsequent reference.[18] Indeed, our corpus-based study shows that, in every case, the dislocated NP represents information that is both hearer-old and discourse-old. Thus, right-dislocation cannot be viewed as marking information that is new in any sense, and in this way differs from existential and presentational *there*-insertion on functional grounds.

As we argued in previous work (Birner and Ward 1996), the difference in function can be attributed to the anaphoric pronoun of right-dislocation. Given that the marked NP in a right-dislocation is coreferential with the pronoun, and that the pronoun is anaphoric and therefore represents a discourse-old entity, it follows that the marked NP must also represent this same discourse-old entity. Thus, it is not accidental that right-dislocation does not require the marked NP to represent new information; the presence of the pronoun in fact precludes such a possibility.

7   Conclusion

We have suggested that a complete functional account of the noncanonical constructions of English requires reference to open propositions, discourse- and hearer-familiarity, and linking relations. By now it should be clear that these constraints are not randomly assigned to the various construction types, but rather that broad generalizations can be made regarding the correlation of syntax and discourse function. Specifically, we have argued that:

- preposing constructions require the preposed constituent to represent information that is old in some sense, while postposing constructions require the postposed constituent to represent information that is new in some sense;
- the constraints on preposing and postposing are absolute, while those placed on argument reversal are relative;
- the functional constraints observed for the classes of preposing and postposing constructions do not hold for superficially similar constructions in which the marked constituent's canonical position is filled by a referential pronoun (i.e. right- and left-dislocation).

Although we have found no necessary correspondence between particular constructions and specific functional constraints, discourse functions nonetheless correlate with syntactic constructions in a principled way. Our research indicates that the range of discourse functions a given construction may serve is constrained by the form of the construction; within that range, however, there is room for arbitrary variation. This approach reconciles both the strong correlations we have found among construction types and function types and the equally strong evidence of variation in the correlation between form and function.

NOTES

1   We use the term "construction" in the conventional sense, to refer to each of the various grammatical configurations of constituents within a particular language. See Fillmore (1988), Prince (1994), and Goldberg (1995), inter alia, for alternative views of what constitutes a linguistic construction.

2   What is relevant here is the presence of information within the hearer's knowledge store, not the hearer's beliefs regarding its truth (in the case of a proposition), existence (in the case of an entity), attributes, etc. That is, what matters for hearer-status is the hearer's knowledge *of*, rather than *about*, the information.

3   Strictly speaking it is the information itself that possesses some information status (and not the constituent representing that information), but where no confusion will result we will speak of constituents as being discourse-old, discourse-new, evoked, etc. for convenience.

4   Thus, the "discourse-old" link need not itself have been explicitly evoked within the prior discourse; as long as it stands in an appropriate relationship with previously evoked information, it is treated by speakers as discourse-old.

5   Higher-value preposings are actually quite rare, and are usually explicitly designated as such, as with the quantifier *both* in (5b).

6   The metaphorical use of the terms "anchor," "link," "linking relation," and "trigger" to describe the relationship between elements of the current sentence and the prior context is relatively widespread in the literature; see Reinhart (1981); Fraurud (1990); Garrod and Sanford (1994); and Strand (1996a, 1996b),

inter alia. Although the various studies utilizing these terms have by and large used them in very similar ways, these studies have failed to draw the (in our view) crucial distinctions among the linguistic items being related, the poset relation connecting the information represented by these items, and the poset itself.

7   In this example the preposition *in* does *not* constitute part of the link, unlike the preposition in (7a). The difference between the two types of links correlates with distinct preposing constructions; see Ward (1988) for discussion.

8   This corpus consists of over 1.3 million words of transcribed oral data drawn from the official transcripts of the Presidential Commission on the Space Shuttle Challenger Accident (1986). We are grateful to Julia Hirschberg for making an on-line version of these transcripts available to us.

9   For convenience, we will use terms like "preposing" and "postposing" to refer to the noncanonical placement of syntactic constituents, although we wish to remain neutral with respect to their actual syntactic analysis.

10   By "accent," we mean "intonational prominence" in the sense of Terken and Hirschberg (1994): "a conspicuous pitch change in or near the lexically stressed syllable of the word" (1994: 126); see also Pierrehumbert (1980).

11   Of course for both topicalization and focus preposing, other constituents may bear pitch accents. Intonationally speaking, the difference between focus preposing and topicalization is that only the former requires that the nuclear accent be on the preposed constituent.

12   As noted in Ward (1988), there is one preposing construction – "locative

preposing" – that does not require a salient OP but does require a locative element in preposed position.

13   While the link typically represents a subset of the anchoring poset, we shall for notational convenience use the set itself in the representation of the OP, e.g. "{sports}" as opposed to "y such that y stands in a poset relation to {sports}."

14   For terminological convenience and continuity, we will retain the terms "existential *there*" and "presentational *there*."

15   Although the PVNPs in (18) are formally definite, as well as hearer-old, we argue elsewhere (Ward and Birner 1995) that it is the information status of an NP – and not its morphosyntactic form – that determines whether or not an NP may appear in postverbal position of an existential *there*-sentence.

16   Breaking with traditional terminology (e.g. Siewierska 1984), we will not refer to the *by*-phrase NP as the agent, nor to these clauses as agentive passives, because in many cases the *by*-phrase NP does not act as a semantic agent (in the sense of Fillmore 1968). In (26), for example, *Ivan Allen Jr.* is not an agent.

17   Prince is not alone in claiming that at least some types of LD serve to introduce new entities into the discourse: Gundel (1974, 1985), Rodman (1974), and Halliday (1967) propose similar functions.

18   Those researchers that have not taken RD to mark the dislocated information as being given in some sense have taken it to be essentially a repair device for self-correcting potentially unclear references (Tomlin 1986; Geluykens 1987; inter alia). However, in cases like those in (31) above, it is not plausible to consider RD to be correcting for a possible reference failure. In (31a), for example, the identity of the referent of *they* in the right-dislocation is clear; not only do the pipes represent the only entity in the context realizable by a plural, but they also represent the most salient entity in the discourse at the time the pronoun is uttered. Similarly, in (31b), Diana is the only female mentioned in the prior discourse, and thus the only available referent for the pronoun *she*.

REFERENCES

Aissen, J. (1975). Presentational-*there* insertion: a cyclic root transformation. *Chicago Linguistic Society*, 11, 1–14.

Birner, B. J. (1994). Information status and word order: an analysis of English inversion. *Language*, 70, 233–59.

Birner, B. J. (1996). Form and function in English *by*-phrase passives. *Chicago Linguistic Society*, 32, 23–31.

Birner, B. J. and Ward, G. (1996). A crosslinguistic study of postposing in discourse. *Language and Speech: Special Issue on Discourse, Syntax, and Information*, 39, 111–40.

Birner, B. J. and Ward, G. (1998). *Information Status and Noncanonical Word Order in English*. Amsterdam and Philadelphia: Benjamins.

Chafe, W. (1976). Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In C. Li (ed.), *Subject and Topic* (pp. 25–55). New York: Academic Press.

Davison, A. (1984). Syntactic markedness and the definition of sentence topic. *Language*, 60, 797–846.

Erdmann, P. (1976). <u>*There*</u> *Sentences in English*. Munich: Tuduv.

Fillmore, C. (1968). "The case for case." In E. Bach and R. Harms (eds), *Universals in Linguistic Theory* (pp. 1–90). New York: Holt.

Fillmore, C. (1988). The mechanisms of "construction grammar." *Berkeley Linguistics Society*, 14, 35–55.

Firbas, J. (1966). Non-thematic subjects in contemporary English. *Travaux Linguistiques de Prague*, 2, 239–56.

Fraurud, K. (1990). Definiteness and the processing of noun phrases in natural discourse. *Journal of Semantics*, 7, 395–433.

Garrod, S. C. and Sanford, A. J. (1994). Resolving sentences in a discourse context: how discourse representation affects language understanding. In M. A. Gernsbacher (ed.), *Handbook of Psycholinguistics* (pp. 675–98). New York: Academic Press.

Geluykens, R. (1987). Tails (right dislocations) as a repair mechanism in English conversations. In J. Nuyts and G. de Schutter (eds), *Getting One's Words into Line: On Word Order and Functional Grammar* (pp. 119–30). Dordrecht: Foris.

Goldberg, A. (1995). *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.

Gundel, J. (1974). The role of topic and comment in linguistic theory. PhD dissertation, University of Texas.

Gundel, J. (1985). "Shared knowledge" and topicality. *Journal of Pragmatics*, 9, 83–107.

Halliday, M. A. K. (1967). Notes on transitivity and theme in English. Part 2. *Journal of Linguistics*, 3, 199–244.

Hawkins, J. A. (1978). *Definiteness and Indefiniteness*. Atlantic Highlands NJ: Humanities Press.

Hirschberg, J. (1991). *A Theory of Scalar Implicature*. New York: Garland.

Horn, L. R. (1972). On the semantic properties of logical operators in English. PhD dissertation, UCLA.

(reprinted 1976, Bloomington: Indiana University Linguistics Club.)

Kucera, H. and Francis, W. N. (1967). *Computational Analysis of Present-day American English*. Providence RI: Brown University Press.

Kuno, S. (1971). The position of locatives in existential sentences. *Linguistic Inquiry*, 2, 333–78.

Lambrecht, K. (1994). *Information Structure and Sentence Form*. Cambridge: Cambridge University Press.

Pierrehumbert, J. (1980). The phonology and phonetics of English intonation. PhD dissertation, MIT.

Prince, E. F. (1981a). Toward a taxonomy of given/new information. In P. Cole (ed.), *Radical Pragmatics* (pp. 223–54). New York: Academic Press.

Prince, E. F. (1981b). Topicalization, focus-movement, and Yiddish-movement: a pragmatic differentiation. *Berkeley Linguistics Society*, 7, 249–64.

Prince, E. F. (1984). Topicalization and left-dislocation: a functional analysis. In S. White and V. Teller (eds), *Discourses in Reading and Linguistics* (pp. 213–25). New York: Annals of the New York Academy of Sciences.

Prince, E. F. (1988). The discourse functions of Yiddish expletive *Es* + subject-postposing. *Papers in Pragmatics*, 2, 176–94.

Prince, E. F. (1992). The ZPG letter: subjects, definiteness, and information-status. In S. Thompson and W. Mann (eds), *Discourse Description: Diverse Analyses of a Fundraising Text* (pp. 295–325). Amsterdam and Philadelphia: Benjamins.

Prince, E. F. (1994). The notion "construction" and the syntax–discourse interface. Paper presented at the 25th Annual Meeting of the North East Linguistic Society, University of Pennsylvania.

Prince, E. F. (1997). On the functions of left-dislocation in English discourse.

In A. Kamio (ed.), *Directions in Functional Linguistics* (pp. 117–43). Amsterdam and Philadelphia: Benjamins.

Reinhart, T. (1981). Pragmatics and linguistics: an analysis of sentence topics. *Philosophica*, 27, 53–94.

Rodman, R. (1974). On left dislocation. *Papers in Linguistics*, 7, 437–66.

Siewierska, A. (1984). *The Passive: A Comparative Linguistic Analysis*. London: Croom Helm.

Strand, K. (1996a). Computing the implicatures carried by "the Φ." In *Computational Implicature: Computational Approaches to Interpreting and Generating Conversational Implicature. Working Notes* (pp. 103–9). American Association of Artificial Intelligence 1996 Spring Symposium Series.

Strand, K. (1996b). A taxonomy of linking relations. Paper presented at the Indiana Workshop on Indirect Anaphora, Lancaster, England.

Terkel, S. (1974). *Working*. New York: Avon.

Terken, J. and Hirschberg, J. (1994). Deaccentuation and words representing "given" information: effects of persistence of grammatical function and surface position. *Language and Speech*, 37.2, 125–45.

Tomlin, R. S. (1986). *Basic Word Order: Functional Principles*. London: Croom Helm.

Vallduví, E. (1992). *The Informational Component*. New York: Garland.

Ward, G. (1988). *The Semantics and Pragmatics of Preposing*. New York: Garland.

Ward, G. and Birner, B. J. (1995). Definiteness and the English existential. *Language*, 71, 722–42.

Ward, G. and Hirschberg, J. (1985). Implicating uncertainty: the pragmatics of fall–rise intonation. *Language*, 61, 747–76.

Ward, G. and Prince, E. F. (1991). On the topicalization of indefinite NPs. *Journal of Pragmatics*, 16, 167–77.

Ziv, Y. and Grosz, B. (1994). Right dislocation and attentional state. *Proceedings of the Ninth Annual Conference and of the Workshop on Discourse* (pp. 184–99). Israeli Association for Theoretical Linguistics.