

# Semantic and Pragmatic Conditions for the Dative Alternation

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## 1. Introduction

One of the difficult areas for persons learning a foreign language is to grasp the range of usages of syntactic patterns that exist in the foreign language. It is not sufficient to learn how passive formation works, or how pre- or postpositional phrases are constructed, or how perfect tenses are expressed. One also has to learn which verbs can passivize at all, which verbs go with which pre- or postpositions, and, in case perfect tenses are expressed, as in a number of European languages, with different auxiliaries like 'have' and 'be', which verb needs which auxiliary. For English, Levin (1993) distinguishes no less than 57 verb classes, most of them with a number of subclasses, that show distinct syntactic behavior.

To understand the syntactic patterns of verbs is also a difficult but rewarding task for linguists, especially for semanticists. Most frequently, the possible syntactic environments in which a verb can occur depend on the meaning of the verb. Other criteria, like phonological or morphological ones, do exist, but appear overall less important. Thus, the syntactic distribution of verbs is a probe into their semantics: If the distribution of two verbs differ, then most likely something in their structural semantics, their semantic form, differs as well.

In this paper I will revisit a very well researched topic, the dative alternation in English. I will try to argue that a consideration of the properties of verbs that do or do not undergo this alternation tells us something about the semantic form of these verbs.

## 2. Different Views of the Dative Alternation

The English dative alternation concerns the following syntactic patterns, called the Direct Object (DO) construction and the Propositional Object (PO) construction.

- (1) a. DO construction:        *Ann gave Beth the car.*  
   NP<sub>0</sub> V    NP<sub>1</sub> NP<sub>2</sub>
- b. PO construction:        *Ann gave the car to Beth.*  
   NP<sub>0</sub> V    NP<sub>2</sub>    to NP<sub>1</sub>

Here, NP<sub>0</sub> denotes the instigator of an action, NP<sub>2</sub> an object that is moved or changes possession, and NP<sub>1</sub> a recipient or goal of the action. In the realization of these forms, Modern English differs from closely related languages, like German, which use a dative case for the recipient, and accusative case for the object that is moved or changes possession.

- (2) *Der Mann gab der Frau das Auto.*  
      the.NOM man gave the.DAT woman the.ACC car

The properties of the dative alternation have been explained in a great number of different ways. I will group these approaches under three headings: the monosemy view, the polysemy view, and the information structure view.

### The Monosemy View

The monosemy view holds that the PO construction and the DO construction have the same meaning. They are related to each other by a syntactic derivation that is not sensitive to the meaning of the verbs. There are a number of different versions of this view. Larson (1988) assumes that the PO construction is basic and the DO construction is derived:

- (3) a.  $[_V \text{ give}_1 [_{VP} \text{ the car} [_V t_1 [_{PP} \text{ to Beth}]]]] \Rightarrow [_V \text{ give}_1 [_{VP} \text{ Beth}_2 [_V t_1 t_2] \text{ the car}]]]$   
 b.  $[_S [\text{the car} [_{VP} \text{ hit} [_{NP} \text{ Beth}]]]] \Rightarrow [_S \text{ Beth}_1 [_{VP} \text{ was hit } t_1] [_{PP} \text{ by the car}]]]$

Aoun and Li (1989) assume that the DO construction is basic and the PO construction is derived:

- (4)  $[_{VP} \text{ give} [_{SC} \text{ Beth} [_{VP} e \text{ the car}]]] \Rightarrow [_{VP} \text{ give} [_{SC} \text{ the car}_2 [_{VP} [_{VP} e t_2] \text{ to Beth}]]]$

And there are non-derivational monosemy accounts, like Butt et al. (1997), that assume that one and the same thematic structure can be realized by two distinct syntactic patterns.

- (5) a. Thematic information: *give* (AGENT, THEME, GOAL)  
 b. Syntactic realizations: (i) *give* [Beth]OBJ [the car]OBJ<sub>THEME</sub>,  
 (ii) *give* [the car]OBJ [to Beth]OBL<sub>GOAL</sub>

To be sure, most monosemy accounts don't even make the claim that semantics doesn't matter; they do not discuss the restriction of the dative alternation to particular verbs. But it is well-known that the dative alternation underlies semantic restrictions, as researches like Green (1974), Oehrle (1976), Gropen et al. (1989), Pinker (1989), Levin (1993) and Pesetsky (1995) have pointed out:

- (6) a. PO, but not DO:  
*Ann pulled the cart to Beth* / ??*Ann pulled Beth the cart.*  
 b. DO, but not PO:  
*Ann denied Beth the ice cream.* / ??*Ann denied the ice cream to Beth.*

There are also meaning differences between the two constructions:

- (7) a. *Ann sent a package to London.*  
 b. *Ann sent London a package.*

Notice that (7.a) is possible only if it metonymically refers to a person, or organization.

### The Polysemy View

The polysemy view takes it serious that verbs are choosy about the syntactic environments in which they occur. This poses a problem for language acquisition: How can restrictions to dative alternation be learned? Since Braine (1971) and Baker (1979), the dative alternation became something like the model construction for studying the acquisition of syntactic patterns, and speculate about issues of learnability – see, among others, Gropen et al. (1989), Pinker (1989), and Snyder and Stromswold (1997). Other important works arguing for polysemy are Jackendoff (1990), Speas (1990), Pesetsky (1995), Goldberg (1995) and Harley (1997). For illustration, I give a few of the analyses that have been proposed.

- (8) a. Pinker (1989):  
 DO:  $[_{EVENT} \text{ give} [_{ANN} \text{ Ann Beth} [_{STATE} \text{ HAVE } \text{Beth the car}]]]$   
 PO:  $[_{EVENT} \text{ give} [_{ANN} \text{ Ann the car} [_{EVENT} \text{ GO the car} [_{PATH} \text{ to } [_{PLACE} \text{ Beth}]]]]]$   
 b. Speas (1990)  
 PO: *Ann CAUSE [the car TO COME TO BE AT (POSSESSION) Beth]*  
 DO: *Ann CAUSE [Beth TO COME TO BE IN STATE (OF POSSESSION)]*  
 BY MEANS OF *[Ann CAUSE [ the car TO COME TO BE AT (POSS) Beth]]*  
 c. Pesetsky (1994); null preposition G  
 DO:  $[_{GIVE} [_{NP} \text{ Beth}]_{GOAL} [_{PP} \text{ G } [_{THE} \text{ the car}]]_{THEME}]$   
 PO:  $[_{GIVE} [_{NP} \text{ the car}]_{THEME} [_{PP} \text{ to } [_{GOAL} \text{ Beth}]]]$

For example, Pinker assumes that *Ann gave Beth the car* expresses the meaning 'Ann caused Beth to have the car', whereas *Ann gave the car to Beth* expresses the meaning 'Ann caused the car to go to

Beth' (or rather, to Beth's possession). The meanings can be very close indeed, but in certain contexts meaning differences appear, and certain verbs may be compatible only with one meaning.

### The Information Structure View

This view holds that the heart of the matter are not subtle meaning differences, but differences in the information structure. In particular, the DO/PO alternation allows for a shift of focused or heavy constituents to the right, thus satisfying a universal, functionally motivated tendency for such constituents (cf. Erteschik-Shir (1979), Arnold et al. (2000)). Consider the following examples:

- (9) A: *Who did he give the book?*  
B: *He gave the book to Beth.* / dispreferred: *He gave Beth the book.*
- (10) a. *Chris gave Terry a bowl of Mom's traditional cranberry sauce.*  
b. dispref.: *Chris gave a bowl of Mom's traditional cranberry sauce to Terry.*

The information structure view is easily compatible with the monosemy view. If the meaning of the two constructions are the same, then information structure preferences may be the only factor in choosing one over the other construction. But it may also be compatible with the polysemy view: The truthconditional meaning differences between the two constructions are typically only slight, and so information structure will decide which one to use in a particular context.

In this talk I will defend the polysemy view, mainly by pointing out meaning differences between the two constructions. I will explain why certain verbs appear to be confined to the PO construction or the DO construction. And I will show why in many situations the truth conditions between the two constructions are virtually identical, thus giving information structure a chance to determine the selection of the PO or DO construction in a particular context.

## 3. Lexical Restrictions for Dative Alternation

Let me start by enumerating the known restrictions for the Dative Alternation.

### Possession

The DO construction involves a proposition of NP<sub>1</sub> **possessing** NP<sub>2</sub> after the verb event. NP<sub>1</sub> (the possessor) must satisfy the **selectional restrictions** for possession:

- (11) a. *Ann sent a package to London.*  
b. *?Ann sent London a package.*

Notice that if Ann sent a package to London, we cannot say that London *has* the package, except if *London* is a metonym for an organization, like Scotland Yard.

The relevant notion of possession includes possession of **information**. Verbs like *show*, *read*, *tell*, *quote* do not express transfer of possession in the literal sense, but they do indicate that the recipient gets hold of some information.

- (12) a. *Ann showed the car to Beth.*  
b. *Ann showed Beth the car.*

The relevant notion of possession also includes **future** possession, as expressed by verbs like *forward*, *offer* and *promise*.

- (13) a. *Ann forwarded the letter to Beth.*  
b. *Ann forwarded Beth the letter.*

### Movement

In the PO construction NP<sub>2</sub> must undergo **movement**. In the following examples, the PO construction is bad because the headache and the idea originates in Beth's head and doesn't move from some other place into it.

- (14) a. *The explosion gave Beth a headache.*  
b. *??The explosion gave a headache to Beth.*
- (15) a. *His behavior gave Beth an idea.*  
b. *??His behavior gave an idea to Beth.*

But this may be overturned by informational structure (cf. Snyder (2001), after Rappaport Hovav and Levin (2001)), as illustrated with examples like the following:

- (16) *Nixon's behavior gave an idea for a book to every journalist living in New York City in the 1970s.*

#### Continuous imparting of force

In the DO construction the verb must not express a **continuous imparting of force** or **control** (cf. Pinker 1989). For example, the verbs *kick*, *hit*, *throw* or *fling* do not express continuous imparting of force; they just refer to the type how a movement was initiated. In contrast, *pull*, *push*, *lower* or *haul* express movements that are controlled by the agent by continuous imparting of force.

- (17) a. *Ann kicked the ball to Beth.*  
b. *Ann kicked Beth the ball.*
- (18) a. *Ann pulled the box to Beth.*  
b. *??Ann pulled Beth the box.*

The verbs in question can be understood in different ways, however. For example, there is a use of *push* in soccer, referring to a short pass, which does allow for the DO construction, presumably because it is used to refer to initiating the movement only (Baker (1992)):

- (19) a. *Pelé pushed the ball to Maradona.*  
b. *Pelé pushed Maradona the ball.*

The verbs *bring* and *carry* (cf. Green (1974)) are possible problem cases because they could be analyzed as referring to controlled activities of continuous imparting of force. Nevertheless, *bring*, and for some speakers, *carry*, do allow for the DO construction.

- (20) a. *Ann brought the roses to Beth.*  
b. *Ann brought Beth the roses.*
- (21) a. *Ann carried the roses to Beth.*  
b. *%Ann carried Beth the roses.*

#### Communication verbs

There are a number of verbs that refer to acts of communication that occur in the DO pattern, the PO pattern, or both. First, there are verbs of **manner of speaking** like *shout*, *scream*, *yell*, *whisper* that do not allow for the DO construction:

- (22) a. *Ann shouted the news to Beth.*  
b. *??Ann shouted Beth the news.*

This is in contrast with many **verbs expressing speech acts** like *tell*, *write*, *read*, *cite*, *quote*:

- (23) a. *Ann told the news to Beth.*  
b. *Ann told Beth the news.*

However, **speech act verbs that subcategorize for a clause** like *say*, *assert*, *claim* do not allow for the DO construction, and require a different word order for PO (Gropen et al. (1989)):

- (24) a. *Ann said to Beth that it was raining*  
b. *\*Ann said Beth that it was raining.*

An exception to this generalization is the verb *tell* when embedding a clause:

- (25) a. *\*Ann told to Beth that it was raining.*  
b. *Ann told Beth that it was raining.*

Verbs referring to **means of communication** like *cable, phone, fax, e-mail* allow for both constructions:

- (26) a. *Ann faxed the news to Beth.*  
b. *Ann faxed Beth the news.*

Due to technological developments, the set of these verbs increased in recent years; it is interesting to note that new verbs in this class behave quite similar in allowing for either construction.

#### Verbs of prevention of possession

Verbs that express the prevention of possession like *deny, spare* or *cost* preferably occur in DO variant:

- (27) a. *Ann denied Beth the icecream.*  
b. *??Ann denied the icecream to/(from/of) Beth.*
- (28) a. *Ann spared Beth the embarrassment.*  
b. *??Ann spared the embarrassment to Beth.*
- (29) a. *The car cost Beth five thousand dollars.*  
b. *??The car cost five thousand dollars to Beth.*

#### Morphophonological restrictions

Perhaps the best-known restriction for the DO pattern is that **Latinate verbs**, which are often borrowed via French, do not allow for the DO construction. Examples are *donate, report, explain, distribute, illustrate, recite, transport*.

- (30) a. *Beth gave the sofa to the museum.*  
b. *Beth gave them the sofa.*
- (31) a. *Beth donated the sofa to the museum. /*  
b. *??Beth donated them the sofa.*

But not all Latinate verbs follow this pattern, cf. *promise, offer*:

- (32) a. *Beth promised the sofa to the museum.*  
b. *Beth promised them the sofa.*

Notice that French lacks the DO construction; hence this is likely a vestige of the influence of French on English.

- (33) a. *Anne a donné la voiture à Beth.*  
b. *??Anne a donné Beth la voiture.*

It appears to be unlikely that the origin of verbs in the history of the language should have an influence on the way how naïve language learners generalize patterns. Grimshaw and Prince (1986) assume, therefore, that it is a special phonological property of Latinate verbs that is responsible for their behavior: The DO construction is possible for verbs with one metrical foot. These are monosyllabic verbs, verbs with initial stress, or verbs with second-syllable stress if the first syllable is schwa, like *allot, assign, award*). This excludes most Latinate verbs, but not all, like *offer* or *promise*.

Yet Pinker (1989, p. 216) points out a semantically motivated exception to the rule: Verbs that express a future possession allow for the DO construction (e.g., *bequeath, guarantee, reserve, assign, allot; refer, recommend, offer, promise*). Also, he finds that the Latinate verbs are typically more complex semantically (p. 123), cf. *give* vs. *donate, explain* vs. *tell, show*, and speculates that this might be the reason why these verbs shun the DO construction. However, it remains unclear why semantic complexity should be incompatible with the DO construction.

#### Semantic differences between DO and PO

So far we have looked at verbs that preferably occur either in the DO or in the PO construction. Of course, many verbs occur in either construction. But there are interesting meaning differences. In par-

ticular, DO often imparts a sense of **completion** that may be lacking with the PO construction. Green (1974) reports an intuition that (34.a) may be true even if the students didn't learn French, whereas (34.b) suggests that the students learned it. Similarly, (35.b) suggests that Beth got a hold of the ball, whereas (a) is more neutral.

- (34) a. *Beth taught French to the students.*  
b. *Beth taught the students French.*
- (35) a. *Ann threw the ball to Beth.*  
b. *Ann threw Beth the ball.*

However, these are tendencies at best. Rappaport Hovav and Levin (2001) observe that even DO does not strictly entail completion:

- (36) *Ann threw Beth the ball, but it didn't reach her because of the strong wind.*

This may be due to a general possible conative interpretation of telic verbs, marginally possible in English but less marginal in many other languages:

- (37) (?) *Ann copied the manuscript, but she didn't finish it.*

Another semantic difference is that DO entails **existence** of NP<sub>1</sub>. For example, (38.a) could be uttered by an atheist, whereas (38.b) implies that God exists.

- (38) a. *Ann told her sorrows to God.*  
b. *Ann told God her sorrows.*

#### 4. Explaining the Restrictions: Previous Attempts

There are a number of attempts to explain the lexical restrictions of the Dative Alternation. Here I will concentrate on two of them, by Steven Pinker and by David Pesetsky.

##### Pinker (1989)

Pinker (1989) assumes that the DO constructions and the PO construction have two distinct semantic representations which can, roughly, be given as follows:

- (39) a. DO: NP<sub>0</sub> CAUSES NP<sub>1</sub> to HAVE NP<sub>2</sub>  
b. PO: NP<sub>0</sub> CAUSES NP<sub>2</sub> to GO TO NP<sub>1</sub>

The DO construction *Ann gave Beth the car* expresses that Ann caused Beth to have the car, whereas the PO construction *Ann gave the car to Beth* expresses that Ann caused the car to "go to" Beth, which is interpreted in this case that the car becomes part of the possession of Beth. These two analyses explain a number of observations:

First, they explain why in the DO construction NP<sub>1</sub> (i.e., Beth) must satisfy the selectional restriction for possession (cf. (11)): The DO construction contains the possessive verb HAVE. Second, they explain why the PO construction entails that NP<sub>2</sub> (the car) undergoes a change of location (cf. (14), (15)): The PO construction says that there is a movement of NP<sub>2</sub> to NP<sub>1</sub>. Third, it becomes clear why in the DO construction it is understood that the intended goal is achieved (cf. (34), (35)): It is claimed that NP<sub>1</sub> possesses NP<sub>2</sub>. In contrast, the move expressed by the PO construction might well be incomplete, as in *Mary walked to the shop but didn't reach it*. Fourth, the analyses explain why in the DO construction, but not in the PO construction, NP<sub>1</sub> (Beth) is supposed to exist (cf. (38)): The existence of possessors is presupposed, but not so the existence of goals. One may move nearer to the end of writing one's dissertation without ever achieving it. We can also explain why verbs that explicitly stress possession, e.g. verbs that express future possession, favor the DO construction, even if they are Latinate verbs (e.g., *reserve*).

But Pinker has to assume in addition to the general representation format a variety of narrow-range rules. For example, he has to state that if a speech act verb contains a manner component, then DO is not an option:

- (40) a. ??*Ann shouted Beth the news.*  
b. *Ann shouted the news to Beth.*

Furthermore, Pinker states as a narrow-range rule that the DO construction is not an option if the causing event and the moving event are simultaneous:

- (41) a. *Ann pulled Beth the box.*  
 b. *Ann pulled the box to Beth.*
- (42) a. *Ann threw Beth the box.*  
 b. *Ann threw the box to Beth.*

However, an exception to this exception is the verb *bring*, and for some speakers also *carry*, for which the DO construction is possible again (cf. (20)).

Certainly it would be good if these narrow-range rules could be shown to follow from the general semantic representation of the constructions.

### Pesetsky (1994)

Pesetsky (1995) analyzes the DO construction assuming a hypothetical preposition G which is incorporated into the verb and which alternates with *to* in PO:

- (43) *Bob gave Sue the ring.*    *Bob gave the ring to Sue.*
- ⇒

Pesetsky attempts to explain several restrictions of the dative alternation. First, the meaning of G excludes verbs of continuous imparting of force, quite similar to the overt preposition *at* (cf. *throw the box at Sue* / *\*pull the box at Sue*). I find this to be a bit stipulative; there is no independent reason given why G should behave in this way. Verbs of expressing the communication of a proposition (*say, assert, claim*) involve “a communicative act that is supervised (or accompanied) by the speaker”, which is similar to verbs expressing a continuous imparting of force. I take this to be an important insight. Verbs of manner of speech, like *whisper*, are similar to verbs that communicate a proposition: Pesetsky claims that it is relevant to render the information that is expressed literally. This doesn't seem to be right, however; witness the following example:

- (44) *Ann whispered to Beth that she wanted to leave.*  
 (O.k. if she actually said: “Let's go!”)

This sentence can be true even if what Ann actually whispered to Beth was “Let's go!”. – Pesetsky's analysis was taken up by Harley (2000), who interprets G as HAVE, a relation expressing possession, making this analysis quite similar to Pinker's.

## 5. A Semantic Account for \*DO and \*PO

Let me now discuss, and refine, the general explanation that I proposed in Krifka (1999) for the verbs that disprefer or do not allow the DO construction. It takes up elements of Pinker's and Pesetsky's theories, but it attempts to develop a more general explanation than can be found in these proposals.

As for the lexical representation of verbs, I propose an event semantics in the footsteps of Davidson (1967). That is, I assume events that are related to participants by thematic roles. In addition, I assume states, which are represented as entities with dedicated variables as well. But I also incorporate the compositional view of Dowty (1979) and Jackendoff (1990), and in fact the General Semantics literature, in distinguishing between causation and caused result in the meaning of verbs. This will turn out to be crucial for the theory to be proposed here.

The following two examples illustrate the representation format I am assuming.

- (45) DO:             *Ann VERBed Beth the car.*  
                            $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, s) \wedge s : \text{HAVE}(\text{Beth}, \text{the\_car})]$

- PO: *Ann VERBed the car to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, e') \wedge$   
 $\text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_car}) \wedge \text{GOAL}(e', \text{Beth})]$

The DO construction claims that there is an event  $e$ , with Ann the agent of  $e$ , such that  $e$  causes a state  $s$ , where  $s$  is a state of Beth having the car. The reference to states is not crucial here; I could have written  $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, \text{HAVE}(\text{Beth}, \text{the\_car}))]$ , that is, I could have treated CAUSE here as a relation between an event and a proposition. The PO construction claims that there is an event  $e$ , with Ann the agent of  $e$ , such that  $e$  causes another event  $e'$ , where  $e'$  is a movement event, with the car the theme of  $e'$  (the object moved) and Beth being the goal of  $e'$ . The reference to a second event  $e'$  is critical here. These are general schemes for the DO construction and PO construction, as indicated by the place holder VERB. More specific verbs, such as *give* or *kick*, can be derived from this by adding more specific semantic information at particular places.

Evidence for the proposed reconstruction of the DO/PO difference comes from the distribution of the adverb *halfway*. This, quite obviously, modifies a movement event, and is compatible only with a semantic frame that contains a movement event.

- (46) a. *Ann threw the ball halfway to Beth.*  
 b. *??Ann threw Beth the ball halfway.*

#### Verbs of continuous imparting of force

I generally follow Pinker's explanation of phenomena like (41). The crucial property that distinguishes *pull* from *throw* is that for *pull*, but not for *throw*, the causing event coincides with the movement event. This means that the representation of the specific manner of *pull* needs a specification of the causing event and the movement event.

- (47)  $\text{MANNER}(\text{pull})(e, e')$ :  
 $e$ : the causing event (application of continuous force to an object, directed towards the causer).  
 $e'$ : the movement of the object, caused by  $e$ ,  
 such that there is a homomorphic mapping between  $e$  and  $e'$ .

To express homomorphic mappings, we have to assume that events, just like other individuals, can be grouped into sum individuals. We write  $x \oplus y$  for the sum of the two individuals  $x$  and  $y$ , and  $x \leq y$  to express that  $x$  is a part of  $y$ , that is, that  $x = x \oplus y$ .

The notion of a homomorphic mapping, which was used for quite different phenomena in Krifka (1992), can be spelled out as follows:

- (48) If  $\text{MANNER}(\text{pull})(e, e')$ , then for all  $x, x' \leq e$  und  $y, y' \leq e'$ :  
 a. If  $y \neq y'$ ,  $\text{MANNER}(\text{pull})(x, y)$ ,  $\text{MANNER}(\text{pull})(x', y')$ , then  $x \neq x'$   
 b. If  $\text{MANNER}(\text{pull})(x, y)$ ,  $\text{MANNER}(\text{pull})(x', y')$ , then  $\text{MANNER}(\text{pull})(x \oplus x', y \oplus y')$

Here, (48.a) states that distinct parts of the moving event correspond to distinct parts of the causing event ( $\leq$ : is the part relation). And (b) states that the sum of two parts of the causing event corresponds to the sum of two parts of the moving event. Such homomorphic mappings are important to express other lexical properties such as incremental themes (cf. Dowty (1991), Krifka (1989), Krifka (1992)).

In contrast, representing the manner of *throw* only requires a specification of the causing event:

- (49)  $\text{MANNER}(\text{throw})(e)$ :  
 $e$ : an event in which the agent of  $e$  imparts force to the theme of  $e$   
 with the hands and then releases it.

This explains why *throw* is fine but *pull* is excluded for the DO construction. To specify the manner of *pull*, we must refer to a movement event, but the DO construction does not provide for that.



- (50) a. *Ann threw the box to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{MANNER}(\textit{throw})(e) \wedge$   
 $\text{CAUSE}(e, e') \wedge \text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_box}) \wedge \text{GOAL}(e', \text{Beth})]$
- b. *Ann threw Beth the box.*  
 $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{MANNER}(\textit{throw})(e) \wedge$   
 $\text{CAUSE}(e, s) \wedge s: \text{HAVE}(\text{Beth}, \text{the\_box})]$
- (51) a. *Ann pulled the box to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{MANNER}(\textit{pull})(e, e') \wedge$   
 $\text{CAUSE}(e, e') \wedge \text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_box}) \wedge \text{GOAL}(e', \text{Beth})]$
- b. *\*Ann pulled Beth the box.*

There is no possible meaning assignment for *\*Ann pulled Beth the box*, as the expression of the manner of *pull* needs to refer to a second event which is not provided by the DO frame.

Indexical verbs: *Bring* and *Carry*

The verb *bring* appears to be an exception to Pinker's generalization. However, I would like to argue that *bring* does not express a manner that relates the causing event and the moving event. Rather, *bring* expresses a property of the causing event: It must be a moving event of the agent during which the location of the theme is the same as the location of the agent and which ends at the location of the other participant. As this is a property of the causing event only, *bring* occurs in both the PO and the DO pattern.

For the formal representation, I assume a function *PLACE* that specifies the place or path of an entity during an event, and a function *END* that identifies the final part of an event. Then *bring* can be analyzed as having a meaning as in the following examples.

- (52) a. *Ann brought the box to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, e') \wedge \text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_box}) \wedge$   
 $\text{GOAL}(e', \text{Beth}) \wedge$   
 $\text{MOVE}(e) \wedge \forall e'' \leq e [\text{PLACE}(e'')( \text{the\_box} ) = \text{PLACE}(e'')( \text{Ann} )] \wedge$   
 $\text{PLACE}(\text{END}(e), \text{Ann}) = \text{PLACE}(\text{END}(e), \text{Beth})]$
- b. *Ann brought Beth the box.*  
 $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, s) \wedge s: \text{HAVE}(\text{Beth}, \text{the\_box})] \wedge$   
 $\text{MOVE}(e) \wedge \forall e'' \leq e [\text{PLACE}(e'')( \text{the\_box} ) = \text{PLACE}(e'')( \text{Ann} )] \wedge$   
 $\text{PLACE}(\text{END}(e), \text{Ann}) = \text{PLACE}(\text{END}(e), \text{Beth})]$

(52.a) states that there is an event *e*, with Ann the agent of *e*, where *e* causes a movement event *e'* with the the box the theme of *e'* and Beth the goal of *e'*. This follows from the general PO frame. In addition, *bring* says that the causing event *e'* is a movement event, and that for every part *e''* of *e* the place of the box at *e''* is identical to the place of Ann at *e''*, and that the place of Ann at the end of *e* is identical (or perhaps just adjacent) to the place of Beth at *e*. This expresses the peculiar semantics of *bring*: The bringer must move to the person the thing is brought to, and the thing being brought must accompany the bringer.

Notice that the specific meaning of *bring* does not involve any reference to the movement event *e'*. It just states something about the causing event *e*: It must be a movement event, which is, I take, a plausible assumption: one cannot bring something without moving, at least in the basic uses of *bring*. As no other movement event is required, *bring* is, therefore, perfectly compatible with the DO frame, as illustrated in (52.b).

We have seen that some speakers can use the verb *carry* in a similar way as *bring*; for others, it does not allow the DO construction. This suggests that there are two possible meanings for *carry* that may be equivalent to a large part but that sometimes show distinct properties. For speakers that do not accept *carry* in the DO construction, the verb presumably expresses a relation between the causing event and a movement event. For these speakers, the manner expressed by *carry* says that the agent of the causing event *x* causes some theme *y* to undergo a movement event *e'* in the following way: *x* moves along *e'* and keeps the theme *y* close to *x* during *e'* by using some force or attention. This

implies a homomorphic mapping between the causing event  $e$  and the movement event  $e'$ . For speakers that do accept *carry* in the DO construction, the verb just expresses a property of the causing event, which is itself a movement event, quite similar to *bring*. In addition to *bring*, the manner of *carry* expresses that the agent uses some force or attention in ensuring that the location of the theme is identical to the location of the agent.

### Verbs of communication

One interesting class of verbs of communication are manner-of-speech verbs. They occur in a basic intransitive use, in which they specify a manner of speech production:

- (53) *Ann yelled.*  
 $\exists e[\text{MANNER}(\text{yell})(e) \wedge \text{AGENT}(e, \text{Ann})]$

In their transitive use, they behave like the verbs in the *pull* class in not allowing for the DO frame. I propose that their semantics is essentially the same, insofar there must be a homomorphism between speech production (e.g., the activity of yelling) and the transfer of information.

- (54)  $\text{MANNER}(\text{yell})(e, e')$ :  
 $e$ : an event in which the agent exerts his articulatory organs with great intensity  
 $e'$ : an event in which information (the theme of  $e'$ ) moves to the goal of  $e'$ , which is caused by  $e$ , such that there is a homomorphic mapping between  $e$  and  $e'$ .

This predicts that these verb only occur in the PO pattern:

- (55) a. *Ann yelled the news to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{MANNER}(\text{yell})(e, e') \wedge \text{CAUSE}(e, e') \wedge \text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_news}) \wedge \text{GOAL}(e', \text{Beth})]$   
 b. \**Ann yelled Beth the news.*

Sentence (55.b) is out because the DO construction does not provide for a movement event.

Speech act verbs like *tell*, *read*, *quote*, *recite* do not express any particular manner, but introduce selectional restrictions for  $\text{NP}_2$ . This also holds for the verb *show* that does not express a speech act but a non-linguistic way of presenting information. Consequently, these verbs occur in both the DO construction and the PO construction. In the following representation,  $\text{PRESENT\_INFO}(e, x)$  indicates that  $e$  is an event in which the agent of  $e$  presents the information present in  $x$ .

- (56) a. *Ann read the news to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}), \wedge \text{CAUSE}(e, e') \wedge \text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_news}) \wedge \text{GOAL}(e', \text{Beth}) \wedge \text{PRESENT\_INFO}(e, \text{the\_news}) \wedge \text{WRITTEN\_TEXT}(\text{the\_news})]$   
 b. *Ann read Beth the news.*  
 $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, s) \wedge s: \text{HAVE}(\text{Beth}, \text{the\_news}) \wedge \text{PRESENT\_INFO}(e, \text{the\_news}) \wedge \text{WRITTEN\_TEXT}(\text{the\_news})]$

Verbs that identify a means of communication do not involve a homomorphism between the causing event and the movement event, but refer to the initial phase of the information transfer, quite similar to *kick*. Evidence for this comes from the fact that (57.a) is not a contradiction, in contrast to (b).

- (57) a. *Ann faxed Beth the results. Actually, Beth's secretary got the fax, and he e-mailed them to Beth.*  
 b. #*Ann e-mailed Beth the result. Actually, she faxed them to Beth's secretary, and he e-mailed them to Beth.*

This suggests that the manner of verbs like *fax* do not involve a homomorphism between causing events and movement events. Rather, they can be spelled out as a property of the causing event only. As a consequence, *fax* and its kind are compatible with the DO construction and the PO construction.

- (58)  $\text{MANNER}(\text{fax})(e)$ :  
 $e$ : an event in which the agent of  $e$  puts the theme of  $e$  into a fax machine and sends it.

- (59) a. *Ann faxed the news to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{MANNER}(\text{fax})(e) \wedge$   
 $\text{CAUSE}(e, e') \wedge \text{MOVE}(e') \wedge \text{THEME}(e', \text{the\_news}) \wedge \text{GOAL}(e', \text{Beth})]$
- b. *Ann read Beth the news.*  
 $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{MANNER}(\text{fax})(e) \wedge \text{CAUSE}(e, s), s: \text{HAVE}(\text{Beth}, \text{the\_news})]$

Interestingly, with the verb *phone* we find a preference for the DO construction. This may be because *phone* normally expresses instantaneous communication, that is, the moving event itself is negligible, and the addressee immediately “possesses” the message.

- (60) a. *Ann phoned Beth the news.*  
 b. *Ann phoned the news to Beth.*

Verbs expressing the utterance of a proposition, like *say*, *assert*, *claim*, can be assimilated to manner of speech, as suggested by Pesetsky with his notion of ‘supervised’ communicative acts).

- (61) *Ann said to Beth that she came home at eight and watched the news on TV.*

In this example, each part of the *saying* activity corresponds to a part of the movement of the proposition ‘she came home at eight and watched the news on TV’. Alternatively, notice that these verbs do not guarantee that the intended recipient actually understands or accepts the proposition, which is a necessary property for the meaning component HAVE in the DO construction.

The verb *tell*, when subcategorizing a proposition, behaves differently in only allowing the DO construction. It crucially entails that the addressee of the reported act of communication actually understood the proposition (i“possesses” it); hence it occurs in the DO construction, cf. (25), which implies change of possession.

#### Transfer of Possession and Verbs of Deprivation

For the core verbs of transfer of possession, like *give*, *sell*, *lend*, *promise*, it seems natural to assume that the DO frame, which expresses possession, is basic. In particular, *give* arguably represents the pure scheme of DO (cf. (45)):

- (62) *Ann gave Beth the car.*  
 $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{THEME}(e, \text{car}) \wedge \text{CAUSE}(e, s) \wedge s: \text{HAVE}(\text{Beth}, \text{car})]$

Why do all verbs of transfer of possession (with the morphophonologically motivated exception of Latinate verbs) also allow for the **PO frame**, with no truth-conditional difference? I would like to suggest that the reason for this is that every transfer of possession can be conceptualized as an abstract movement event in the dimension of possession spaces: When Ann gives Beth a car, then the car is moved from the possession of Ann into the possession of Beth.

- (63)  $s: \neg \text{HAVE}(x, y)$  and  $s': \text{HAVE}(x, y)$ , and  $s'$  follows  $s$  immediately  
 iff  $\exists e [\text{MOVE}_{\text{POSS}}(e) \wedge \text{THEME}(e, y) \wedge \text{GOAL}(e, x)]$

By this equivalence, we predict that verbs of possession change also occur in the PO frame, in which they literally express the movement of objects in possession spaces.

- (64) *Ann gave the car to Beth.*  
 $\exists e \exists e' [\text{AGENT}(e, \text{Ann}) \wedge \text{CAUSE}(e, e') \wedge \text{MOVE}_{\text{POSS}}(e') \wedge \text{THEME}(e', \text{the\_car}) \wedge \text{GOAL}(e', \text{Beth})]$

The idea, then, is that even though the truth conditions of (62) and (64) are the same, their representation differs. Such distinctions can be expressed in frameworks that distinguish between two levels of semantics, e.g. logical form and its model-theoretic interpretation, or a semantic form and a conceptual form (cf. Bierwisch and Lang (1989), Wunderlich (1997)).

In Krifka (1998), a generalization of the notion of a movement path is developed that captures abstract movements of the sort necessitated by *give* in the PO frame. The path of movements in possession spaces is degenerated and consists of two points only (Source, Goal), which explains why path-referring adverbials like *halfway* are out, even in the PO construction.

- (65) a. *Ann kicked the ball halfway to Beth.*  
 b. *\*Ann gave the ball halfway to Beth.*

We have seen that some idiomatic uses of *give* strongly prefer the DO frame, such as *give Beth a headache*, or *give Beth an idea* (cf. (14), (15)). In these uses, no change of possession is implied, and hence no movement in a possession space. Rather, it is expressed that possession is acquired without any change. This is compatible with the DO frame but not with the PO frame, which requires that the theme first was somewhere else before it moved to the goal.

- (66) a. *Ann's behavior gave Beth this idea.*  
 $\exists e \exists s [\text{Ann's behaviour}(e) \wedge \text{CAUSE}(e, s) \wedge s: \text{HAVE}(\text{Beth}, \text{this idea})]$
- b. *\*Ann's behavior gave this idea to Beth.*  
 $\exists e \exists e' [\text{Ann's behaviour}(e) \wedge \text{CAUSE}(e, e') \wedge \text{MOVE}_{\text{POSS}}(e') \wedge \text{THEME}(e', \text{this idea}) \wedge \text{GOAL}(e', \text{Beth})]$

### Verbs of prevention of possession

Verbs of prevention of possession like *deny*, *spare*, *cost* do not allow for the PO pattern:

- (67) a. *Ann denied Beth the icecream.*  
 b. *\*Ann denied the icecream to Beth.*

We can capture this behavior by assuming that these verbs are like possession change verbs except that the possession change is negated.

- (68) *Ann VERBed Beth the car.* (for verbs of prevention of possession)  
 $\exists e \exists s [\text{AGENT}(e, \text{Ann}) \wedge \text{THEME}(e, \text{car}) \wedge \text{CAUSE}(e, s) \wedge s: \neg \text{HAVE}(\text{Beth}, \text{car})]$

The prevention of possession does not correspond to any movement in possession space, so it follows that such verbs do not occur in the PO frame. In particular, we cannot state a CAUSE relationship between a causing event *e* and a moving event *e'* when it is expressed that any such moving event does not exist.

## 6. The Role of Information Structure

We have seen that when we assume distinct semantic representations for the DO pattern and the PO pattern we can give a systematic account for the restrictions of these patterns for certain verbs. This, altogether, strengthens the polysemy view: The meanings of *Ann kicked the ball to Beth* and *Ann kicked Beth the ball* are indeed different. Either there is a systematic ambiguity of the verb *kick*, or there is a uniform and general meaning of *kick* that captures the specific manner expressed by this verb, together with specific meaning contributions of the syntactic frames DO or PO. The latter view is consonant with construction grammar approaches, like Goldberg (1995). I will not argue for one or the other view within the polysemy account developed here.

We have also seen that information structure plays a major role in the choice of the DO construction or the PO construction, cf. the discussion in section 1. How can the issue of the proper presentation of information affect a choice between two forms that are semantically different, that is, that represent different information? This is possible because the two constructions, even though they differ in their semantic form, can have identical or near-identical truth conditions. This allows for the choice of the proper form is governed, in addition to the meanings of the competing forms, by for the presentation such meanings in a particular context.

This is quite obvious with verbs that truthfunctionally are indeed identical in the DO and PO frame, most prominently *give*. The tendency that complex and/or novel NPs should occur last, and the rule that definite pronouns, which are both short and given, should not occur last, greatly determines the sentences we find. In a recent manuscript, Bresnan and Nikitina (2003) cite cases from a corpus study like the following in which the two constructions occur in immediate vicinity to each other.

- (69) a. "You don't know how difficult it is to find something which will please everyboyd – especially the men."  
 "Why not just **give them cheques**?" I asked.  
 "You can't **give cheques to people**. It would be insulting."

- b. You **carrying a doughnut to your aunt** again this morning? [...] Looks like you **carry her some breakfast** every morning.

However, there are also cases where information structure appears to override the semantic restrictions argued for above. Some examples from Bresnan and Nikitina (2003):

- (70) a. He pulled himself a steaming piece of the pie.  
b. You must mumble him an answer.  
c. it is unreadable, guaranteed to give a headache to anyone who looks hard at the small print.  
d. It would cost nothing to the government.

Bresnan and Nikitina (2003) reject the semantic ambiguity thesis and argue for the monosemy account, even though their own intuitions concur with the reported intuitions on which the polysemy account was developed. They explain these intuitions by the different frequency of constructions in the corpus that speakers are exposed to on which new uses of the constructions are patterned, and they develop a set of ranked constraints that capture such frequency effects.

I would like to maintain that the ambiguity hypothesis can still be defended, in spite of the examples that Bresnan and Nikita present. We can say that the indicated representations of different manners are just preferred representations that can be cancelled in case of stronger requirements by information structure. So, even though a verb like *pull* preferentially expresses a manner that relates a causing event and a movement event, there is another, dispreferred option in which *pull* expresses a manner that can be stated with reference to the causing event only (roughly, ‘cause that something becomes the case by pulling’).

## 7. Conclusion

In this paper I have reviewed the facts concerning the dative alternation in English. I have argued that by looking at the verbs that can be used in the DO or the PO form, we can learn something about the structural semantics of these verbs: In the DO case, the basic meaning is change of possession, in the PO case, it is movement to a goal. In many cases, either one of these structures fit the particular semantic requirement of a given verb; in others, one structure will be strongly preferred. I have also argued for a particular format of lexical representation, one that allows reference to events, as the semantic properties cannot be stated properly except by reference to events.

In addition to the semantic conditions, I have argued, the DO and PO constructions also allow for different information structures. Information structure appears to be the decisive factor for verbs like *give* that essentially mean the same in the PO construal and in the DO construal. But we also have seen cases in which information structure appears to override semantic restrictions.

## References

- Aoun, Joseph, and Li, Yen-hui Audrey. 1989. Scope and constituency. *Linguistic Inquiry* 20:141-172.  
Arnold, Jennifer E., Wasow, Thomas, Losongco, Anthony, and Ginstrom, Ryan. 2000. Heaviness vs. newness: The effects of structural complexity and discourse status on constituent ordering. *Language* 76:28-55.  
Baker, Carl Lee. 1979. Syntactic theory and the projection problem. *Linguistic Inquiry* 10:533-581.  
Baker, Carl Lee. 1992. Review of S. Pinker, *Learnability and Cognition: The Acquisition of Argument Structure*. *Language* 68:402-413.  
Bierwisch, Manfred, and Lang, Ewald. 1989. *Dimensional adjectives. Grammatical structure and conceptual interpretation*: Springer.

- Braine, Martin D. S. 1971. On two types of models of the internalization of grammars. In *The ontogenesis of grammar: A theoretical symposium*, ed. Dan Slobin, 153-168. New York: Academic Press.
- Bresnan, Joan, and Nikitina, Tatjana. 2003. On the gradience of dative alternation. Ms. Stanford University.
- Butt, Miriam, Dalrymple, Mary, and Frank, Anette. 1997. An architecture for linking theory in LFG. Paper presented at *Proceedings of the LFG97 Conference*, University of California, San Diego.
- Davidson, Donald. 1967. The logical form of action sentences. In *The Logic of Decision and Action Pittsburgh*, ed. Rescher Nicholas, 81-95. Pittsburgh: Pittsburgh University Press.
- Dowty, David. 1979. *Word meaning and Montague grammar. The semantics of verbs and times in Generative Semantics and in Montague's PTQ*: Synthese Language Library. Dordrecht: Reidel.
- Dowty, David. 1991. Thematic proto-roles and argument selection. *Language* 67:547-619.
- Erteschik-Shir, Naomi. 1979. Discourse constraints on dative movement. In *Syntax and semantics 12: Discourse and syntax*, ed. Talmy Givón, 441-467. New York: Academic Press.
- Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*: University of Chicago Press.
- Green, Georgia. 1974. *Semantics and syntactic regularity*. Bloomington: Indiana University Press.
- Grimshaw, Jane, and Prince, Alan. 1986. A prosodic account of the *to*-Dative alternation, MS., Brandeis University.
- Gropen, Jess, Pinker, Steven, Hollander, Michelle, Goldberg, Richard, and Wilson, Ronald. 1989. The learnability and acquisition of the dative alternation in English. *Language* 65:203-257.
- Harley, Heidi. 1997. If you *Have*, you can *Give*. Paper presented at *West Coast Conference of Formal Linguistics 15*.
- Harley, Heidi. 2000. Possession and the double object construction. Ms. Ms., Tucson, <http://w3.arizona.edu/~ling/hh/PDFs/HarleyGive2000ms.pdf>.
- Jackendoff, Ray. 1990. *Semantic structures*. Cambridge, Mass.: MIT Press.
- Krifka, Manfred. 1989. *Nominalreferenz und Zeitkonstitution. Zur Semantik von Massentermen, Pluraltermen und Aspektklassen*: Studien zur Theoretischen Linguistik. München: Wilhelm Fink.
- Krifka, Manfred. 1992. Thematic relations as links between nominal reference and temporal constitution. In *Lexical Matters*, eds. Ivan A. Sag and Anna Szabolcsi, 29-53. Stanford: CSLI.
- Krifka, Manfred. 1998. The origins of telicity. In *Events and grammar*, ed. Susan Rothstein, 197-235. Dordrecht: Kluwer.
- Krifka, Manfred. 1999. Manner in dative alternation. Paper presented at *West Coast Conference in Formal Linguistics 18*, Tucson.
- Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19:335-391.
- Levin, Beth. 1993. *English verb classes and alternations. A preliminary investigation*: University of Chicago.
- Oehrle, Richard T. 1976. The grammatical status of the English dative alternation, MIT: Doctoral Dissertation.
- Pesetsky, David. 1995. *Zero Syntax. Experiencers and cascades*. Cambridge, Mass.: MIT Press.
- Pinker, Steven. 1989. *Learnability and cognition. The acquisition of argument structure*. Cambridge, Mass.: MIT Press.
- Rappaport Hovav, Malka, and Levin, Beth. 2001. Polysemy, monosemy, and the dative alternation. Ms., *Handout, Workshop on Verbs, Arguments and Polysemy, Konstanz, July 23-25, 2001*.
- Snyder, Karin. 2001. What can the pragmatics of double object constructions tell us about their syntax? Paper presented at *Chicago Linguistic Society 37*.
- Snyder, William, and Stromswold, Karin. 1997. The structure and acquisition of English dative constructions. *Linguistic Inquiry* 28:281-317.
- Speas, Margaret. 1990. *Phrase structure in natural language*. Dordrecht: Kluwer.
- Wunderlich, Dieter. 1997. Cause and the structure of verbs. *Linguistic Inquiry* 28:27-68.