注：这篇论文是“构式语法”重要文献之一。

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# Surface Generalizations: an alternative to alternations[1]

Adele E. Goldberg
University of Illinois

*Abstract*

Since the earliest days of generative grammar, there has existed a strong tendency to consider one argument structure construction in relation to a particular rough paraphrase. Initially this was a result of the emphasis on transformations that derived one pattern from another. While today there exist many non-derivational theories for which this motivation no longer exists, the traditional outlook has not completely lost its grip, as can be seen from continuing focus on partial or incomplete generalizations such as the “dative” construction or the “locative” alternation. This paper argues that it is profitable to look beyond alternations and to consider ea surface pattern on its own terms. Differences among instances of the same surface pattern are often most natural attributed directly to the different verbs and arguments involved.

## 1. The Surface Generalization Hypothesis

Many theoretical approaches today eschew the need for any kind of transformation or derivation (e.g., Bresnan 1982; Bresnan 1994; Fillmore, Kay, and Michaelis in progress; Lakoff 1987; Langacker 1987a; Langacker 1991; Pollard and Sag 1987). A compelling reason to avoid positing derivations in favor of an emphasis on surface form is simply that there are typically powerful generalizations surrounding particular surface forms that are more broad than those captured by derivations or transformations. We refer to these broader generalizations as Surfac Generalizations. The present paper focuses on the domain of argument structure; the surface formal and semantic/pragmatic generalizations in this domain are captured by Argument Structure Constructions: pairings of form and function that are used to express basic clauses.

In this paper, several case studies are considered including the “dative” construction and the “locative alternation.” It is argued that traditional divisions under-represent the generalizations that exist. We addres the question of how to account for paraphrase relations, as well as how to account for various differences betwe instances of the same argument structure construction in section 5. In this section we review an important historical precedent for the form of argument made here.

Despite being the most influential architect of transformations and later, derivations, Chomsky (1970) put forwa one of the most well-known and widely accepted arguments against deriving one subset of data from another. His argument was based on Surface Generalizations. In particular, he demonstrated that NPs based on “derived” noun (i.e., nouns that have verbal counterparts) have exactly the syntax of NPs based on underived nouns. In particul they both have the same internal and external syntax. Both types occur with the full array of determiners, often pluralize, and take complements marked with *of*. Both types can appear as the subject of passives or can be distantly instantiated by a question word. To avoid an account in which this is mere coincidence, Chomsky reasoned, we need to recognize that both types are base-generated as nouns instead of attempting to derive certa

NPs from clausal counterparts (Lees 1960). With Williams (1991), we might call this the “target syntax argument”: it is preferable to generate A directly instead of deriving it from C if there exists a pattern B that has the same target syntax as A and is clearly not derived from C.

Williams (1991) makes a parallel “target semantics argument.” He observes that the meanings of NPs based on underived nouns fall into the same set of categories as the meanings of NPs based on “derived” nouns. For example, extent, temporal duration, and evaluative states can be predicated of both “derived” and underived nouns (1991:584):

Extent:
(1) a. The destruction of the city was complete. Potentially derived
b. The carnage was complete.
Underived

Temporal duration
(2) a. The destruction of the city took four hours. Potentially derive
b. The war took for hours.
Underived

Evaluative state
(3) a. The destruction of the city was horrible. Potentially derived
b. The war was horrible. Underived
(not just the fact of the war, but the way the war was)

At the same time, Williams argues, the range of NP meanings is distinct from the range of S meanings, as seen in examples (4)-(6) (1991: 585)[2]:

Extent
(4) *That the city was destroyed was complete.

Temporal duration
(5) *That the city was destroyed took four hours.

Evaluative state
(6) *That the city was destroyed was horrible. (just the fact that the city was destroyed, not the way was destroyed)

In short, given that the syntax and semantics of derived nouns are like those of underived nouns, and unlike the syntax and semantics of clauses, it is clearly simpler to allow the nouns to be base-generated as nouns as oppos to deriving them from clause structures.

Beyond target syntax and target semantics arguments are what are referred to below as “input” syntax and semantics arguments. In particular, it is preferable to avoid deriving A from C if there exists a pattern B that has the same syntax and semantics as C and yet cannot serve as input from which to derive A.

The arguments put forth by Chomsky (1970) (and Williams 1991) have been robust. For more than three decades, the field has resisted the temptation to derive deverbal NPs from clauses. What is less widely recognized is that parallel arguments hold in the domain of argument structure. These arguments support the idea that each argument structure pattern is best analyzed on its own terms, without relying on explicit or implicit reference to a possible alternative paraphrase. It is argued that such reliance effectively puts blinders on, and limits a theory’s ability to state the full extent of the relevant generalizations.

We might label the hypothesis that the target syntax and target semantics arguments and the input syntax and semantics arguments hold in general for argument structure patterns, the *Surface Generalization Hypothesis*.

> Surface Generalization Hypothesis: there are typically broader syntactic and semantic generalizations associated with a surface argument structure form than exist between the same surface fo and a distinct form that it is hypothesized to be syntactically or semantically derived from.

Support for the Surface Generalization Hypothesis provides substantial motivation for the assumption that the sy of argument structure should be represented without recourse to derivations. Perhaps more relevantly for the pre audience, it also suggests that it is possible to overplay the importance of alternative forms (paraphrases).

In section 2 the ditransitive construction is discussed. Section 3 analyzes the dative paraphrase and the benefactive paraphrase as instances of broader argument structure constructions. Section 4 focuses on generalizations beyond the "load/spray" alternation. In section 5 we focus on the role of individual verbs and argue that they serve to capture what is shared between members of an alternation; it is also argued that attention to individual verbs allows us to motivate distinctions among instances of what are argued to involve t same general argument structure construction. Section 6 clarifies what is intended by "surface form;" in thi section it is suggested that argument structure constructions in English do not specify word order but instead a better captured by a set of grammatical relations together with the corresponding semantic interpretation.

## 2. The Ditransitive Construction

Many generative theories derive the two ditransitive or double object expressions in (7) from distinct input expressions on the left, which correspond to their rough paraphrases (Baker 1988; Larson 1988):

(7) a. Mina bought a book for Mel.→ Mina bought Mel a book.

b. Mina sent a book to Mel. → Mina sent Mel a book.

Even certain constructional approaches treat the two examples on the right at instance of two independent constructions (e.g., Jackendoff 1990; Kay Ms-2001). However, both instances of the ditransitive share many properties with each other and differ systematically from their paraphrases (see also Langacker 1991; Oehrle 1975). That is, there are good reasons to group the two "outputs" together as distinct from the "inputs" as follows:

| | |
|---|---|
| Mina bought a book for Mel. | Mina bought him a book. |
| Mina sent a book to Mel. | Mina sent Mel a book. |

Obvious similarities between the two ditransitive expressions begin with their shared surface form; in its simpl active form, the ditransitive involves an active verb followed by two NPs. Both ditransitives readily allow the theme argument to be distantly instantiated, for example as a question word:

(8) a. What did Mina buy Mel?
b. What did Mina take Mel?

In both cases questioning the recipient argument is less acceptable:

(9) a. ??Who did Mina buy a book?
b. ??Who did Mina take a book?

Both paraphrases, on the other hand, allow either the recipient or theme argument to be questioned with equal ease:

(10) a. Who did Mina buy a book for?
b. Who did Mina take a book to?

(11) a. What did Mina buy for Mel?
b. What did Mina take to Mel?

The abilility to form passive has been claimed to differentiate ditransitives into two types; it has been claim that that only those with paraphrases involving *to* can be passivized (Fillmore 1965; Kay Ms-2001). While it may true that ditransitives that have paraphrases with *to* show a statistical tendency to passivize more easily than those that have paraphrases with *for*, the generalization is far from clear cut as many have observed (see Culicover and Wexler 1973; Erteschik-Shir 1979; Oehrle 1975). For example, the following examples appear to be equally acceptable (or if anything, a. is more acceptable than b. despite the fact that only b. is paraphrasable with *t)*::

(12) a. Mel was cooked a fine dinner by the new chef. (cf. The new chef cooked a fine dinner for Mel)
b. Mel was tossed a blanket by the babysitter. (cf. The babysitter tossed a blanket to Mel.)

There are additional ways in which all ditransitives pattern alike. Adverbs may not separate the two NP argument in ditransitives (13), while they can separate the direct object from the *for* prepositional phrase as in (14a) a

to some extent can separate the direct object from the “to” prepositional phrase as in (14b):

(13) a. *Mina bought Mel yesterday a book.
b. *Mina sent Mel yesterday a book.

(14) a. Mina bought a book yesterday for Mel.
b. ?Mina sent a book yesterday to Mel.

Neither type of ditransitive expression allows the theme argument to be the third person singular *it* (Green 1974 Oehrle 1976):

(15) a. ??Mina sent Mel it.
b. ??Mina bought Mel it.

This restriction does not hold of either prepositional paraphrase:

(16) Mina sent it to Mel.
(17) Mina bought it for Mel.

Beyond, and often behind the similarities of the surface form of a construction there lie shared functional similarities. In the case of the ditransitive, all instances share identical information theoretical constraints and have closely related semantics. [3] That is, information structure properties group ditransitives together a class. In both so-called *to* and *for* ditransitives, for example, the recipient argument tends to be shorter in length and already given in the discourse, as compared to either prepositional paraphrase (Arnold et al. 2000; Erteschik-Shir 1979; Thompson 1990).

Semantically, both so-called *for* ditransitives and so-called *to* ditransitives require that the recipient argumen be construed to be animate (Green 1974; Oehrle 1975; Partee 1965/1979):[4]

(18) a. ??Mina sent that place a box.
b. ??Mina bought that place a box.

This restriction is again not relevant to either prepositional paraphrase:

(19) a. Mina sent a box to that place.
b. Mina bought a box for that place.

More generally, the particular meaning associated with the ditransitive evokes the notion of “giving” in varic ways, depending on the verb class involved. This is in contrast to paraphrases with *for*. For example, while (20) can be used to mean that Mina bought a book for a third party because Mel was too busy to buy it himself, (21a) can only mean that Mina intended to give Mel the book (Green 1974; Oehrle 1976; Goldberg 1992). The semantics of giving is likewise apparent in (21b):

*For* paraphrase:
(20) Mina bought a book for Mel.
(the book could be intended for Mel’ s mother, bought by Mina because Mel was too busy to buy it)

Ditransitives:
(21) a. Mina bought Mel a book. (Mina intends to *give* Mel the book)
b. Mina sent Mel a book. (Mina again intends to *give* Mel the book)

Other interpretations for the ditransitive can also be systematically related to the notion of giving, in that they may imply that the transfer will occur if certain satisfaction conditions evoked by the main verb occur (22a), that transfer will *not* occur (22b), or that the antonymic relation of giving, that of taking away occurs (22c).[5]

(22) a. Mina guaranteed/offered Mel a book. (If the guarantee or offer is satisfied, Mel will receive a book)
b. Mina refused Mel a book. (Mina caused Mel not to receive a book)
c. Mina cost Mel his job. (Mina causes Mel to lose h job).

It has been suggested that the existence of variable meanings undercuts the claim of a unified construction (Nakajima 2002). The criticism stems from the belief that the concepts of, for exampl

giving, not giving, and taking away cannot naturally be classed together. However, it is clear tha both the negation and the antonym of a particular concept are closely associated with that concept For example, a concept and its antonym typically serve as strong associates for one another in psycholinguistic studies (Meyer and Schvaneveldt 1971): e.g., *hot* primes *cold*, *high* primes *low*, an *giving* primes *taking away*. Negated sentences typically presuppose that the corresponding positive assertion has been asserted or might be believed in the particular context of use (Givón 1979). In this way we can see that giving, not giving, and taking away *are* in fact closely associated concepts.

Thus we see that ditransitives expressions pattern alike on a number of syntactic and semantic dimensions regardless of their potential paraphrases. It seems that the only thing that the respective paraphrases share with the ditransitives is the quite rough paraphrase relations themselves. There is little empirical motivation to decree that ditransitives must be derived from prepositional paraphrases nor that ditransitives that admit of distinct paraphrases must be treate as themselves more than minimal variants of each other. The robust generalizations are surface generalizations.

## 3. The Caused Motion and Benefactive Constructions

Beyond target syntax and target semantics arguments are input syntax and semantics arguments: it i preferable to avoid deriving A from C if there exists a pattern B that has the same target syntax and semantics as C and yet cannot serve as input from which to derive A. By widening our focus beyond those expressions that may serve as paraphrases of ditransitives, we see that each paraphra expression itself is a small part of a much broader generalization. For example, although only (23 can be paraphrased by a ditransitive, it patterns together with (23b, c, d) both syntactically and semantically; in fact, all of the expressions in (23) can be captured by a single “caused-motion” construction (Goldberg 1995; cf. also Pinker 1989).

(23) a. Mina sent a book to Mel.
b. Mina sent a book to Chicago.
c. Mina sent a book toward the front of the room.
d. Mina sent a book through the metal detector.

Similar extensions of meaning that we saw above for the ditransitive likewise exist in the case of the caused motion construction, even though the verb classes involved are distinct:

(24) a. Mina coaxed Mel into the room. (if coaxing is successful, Mel moves into the room)
b. Mina helped Mel into the room. (Mina helps Mel move into the room)
c. Mina blocked Mel out of the room. (Mina causes Mel *not* to move into the room)

The *for* paraphrase of certain ditransitives (e.g., 25a) patterns together with (25b, c) syntactically and semantically; each are instances of a transitive construction together with a benefactive adjunct construction.

(25)a. Mina sent a book for Mel.
b. Mina sent a book for the library.
c. Mina sent a book for her mother’s sake.

An objection might be raised against the proposal that all *for*-benefactive phrases should be treat as a natural class. It might be argued that because more than one can co-occur, they cannot play t same role in the sentence:

(26) Mina sent a book for Mel for her mother’s sake.

That is, Fillmore (1968) long ago observed that only one semantic role of each type may occur in a single clause We do not find two distinct agents or patients co-occurring in a single clause:

(27) *Bob melted the butter by Paul.
(28) *The butter was melted the ice.

But Fillmore's constraint only holds of certain semantic roles, namely those that can be identifi as arguments. Adjuncts can freely be added as long as they do not imply a semantic contradiction; particular they must be construed to have concentric semantic scope such that one more narrowly specifies another. Consider the following sentence with multiple temporal adjuncts:

(29) Mina met Bob *in the morning yesterday at 11 o'clock*.

Notice the hour (here 11 o' clock) must occur within the part of the day (morning) which is in turn within the d (yesterday). It cannot be claimed that the temporal phrases must be interpreted syntactically as a single comple adjunct because they need not be continuous:

(30)a. *Yesterday* Mina met Bob *in the morning at 11 o'clock*.
b. *At 11 o'clock in the morning* Mina met Bob *yesterday*.
c. *Yesterday* Mina met Bob *in the morning* by the beach *at 11 o'clock*

More than one locational adjunct can likewise appear in a single clause:

(31) Mina met Mel *on the beach in California near the boardwalk*.

Again, the locational adjuncts need not be continuous and therefore are distinct adjunct phrases:

(32)a. *In California*, Mina met Mel *on the beach near the boardwalk*.
b. *Near the boardwalk* Mina met Mel *on the beach in California*.
c. *On the beach in California* Mina met Mel *near the boardwalk*.

Thus the fact that more than one *for* phrase can appear does not necessarily undermine the argument that each of those in (25) is a benefactive phrase. The *for* phrases are all headed by the preposition *for* and they all encode a benefactive relation. Moreover each functions as an adjunct. The shared syntax and semantics of these phrases argue for treating them alike.

It should be made clear that we are not claiming that *all for* phrases encode benefactives. Clearly there are other uses of the preposition *for* in English which may not be related, for example, thos in (33). Prepositions are typically highly polysemous and sometimes ambiguous (see Brugman 1988; Lakoff 1987; Lindner 1981).

(33)a. The statue stood for three hours.
b. He exchanged the socks for a belt.

That is, there do exist instances of *constructional ambiguity*: a single surface form having unrelated meanings.[6] It must be emphasized that it is not being claimed that meaning is simply *re off* surface form. What is being suggested here is simply that by putting aside rough paraphrases a considering all instances with a formal and semantic similarity, broader generalizations can be attained. In order to identify which argument structure construction is involved in cases of constructional ambiguity, attention must be paid to individual verb classes. In fact, in order to arrive at a full interpretation of any clause, the meaning of the main verb and the individual arguments must be taken into account. This is discussed in more detail in section 5. In cases such as those in (25), what is being proposed is simply that if a constituent looks like a benefactive phrase and acts like a benefactive phrase, then there is no reason to be shy about calling it a benefactive phrase.

Thus the input syntax and semantics arguments strengthen the case against deriving ditransitives from their corresponding paraphrases which have prepositional arguments. The formal patterns involved should be viewed as constructions on their own terms—the ditransitive, the caused motion the simple transitive and the benefactive adjunct constructions:

Mina bought Mel a book. Ditransitive Construction
Mina sent Mel a book.
Mina sent a book to Mel. Caused-Motion Construction
Mina bought a book for Mel. Transitive construction + benefactive adjunct construction

Each of these constructions can be seen to be much more general than is often recognized when only instances tha
alternate in certain ways are considered. A more representative array of instances of each construction is
provided below:

Ditransitive
(37a) Mina bought Mel a book.
Mina sent Mel a book.
Mina gave Mel a headache.
Mina fixed me a sandwich.
Mina guaranteed/offered Mel a book.
Mina refused Mel a book.
Mina cost Mel his job.

Caused-Motion Construction
(38a) Mina sent a book to Mel.
b. Mina sent a book to Chicago.
c. Mina tossed a book toward the front of the room.
d. Mina put a book through the metal detector.
e. Mina coaxed Mel into the room.
f. Mina helped Mel into the room.
g. Mina blocked Mel out of the room.

Transitive construction + benefactive adjunct construction
(39a) Mina sent a book for Mel.
b. Mina sent a book for the library.
c. Mina sent a book for her mother’ s sake.

4. Load/Spray
Similar arguments can be made for other types of argument structure patterns that are often only considered in
terms of alternations (Anderson 1971; Fraser 1971; Hook 1983; Rappaport and Levin 1988). Consider the following
examples in (40) and (41).

(40) Pat loaded the wagon with the hay.
(41) Pat loaded the hay onto the wagon.

It has been suggested that the *with* variant is derived from the *into* variant (e.g., Rappaport and
Levin 1988). Let us consider the “input” syntax and semantics first. The “into” variant can be
seen to be an instance of the much broader caused-motion construction already discussed. That is,
each of the examples in (42) shares the same surface syntax: each has a DO and prepositional obliq
phrase. The semantics are closely related as well; in each case the subject argument serves to cau
the motion of the DO argument along the path or to the location specified by the oblique argument:

(42) a. Pat loaded the hay onto the wagon.
b. Pat put the hay on the wagon.
c. Pat shoveled the hay into the wagon.

The b and c forms of (42) cannot serve as input to any locative alternation as can be seen in the ill-formedness
of the following examples:[7]

(43) b. *Pat put the wagon with hay.
c. *Pat shoveled the wagon with the hay.

We thus see that the input syntax and semantics arguments hold for the *into* variant of the so-call
locative alternation. We now turn to the putative “output” syntax. Making the argument that the
*with* variant is an instance of a broader generalization is somewhat more controversial than the
other cases discussed so far primarily because *with* has a remarkably wide range of uses, a point w
return to below. Consider just a sampling of various uses of *with*:

(44) a. Elena traveled with Maya.
b. Elena traveled with a hat on.
c. Aliza traveled with great enthusiasm.
d. People associate one variant with another.
e. Be sure to mix the butter with sugar.

f. The foundation provided the school with funding.
g. Pat loaded the wagon with hay.
h. The garden swarmed with bees.
i. The detective entered the room with a key.
j. Pat broke the window with a hammer.
k. Pat watched the bear with a telescope.

One would have to be quite an ardent lumper to try to class *all* of these uses of *with* under a sing sense. Again, this is not the claim of the present paper: we do not deny the existence of constructional ambiguity. It is suggested, however, that it is important not to *assume* massive ambiguity without seeking out broader surface generalizations.

Consider just the following examples that have been independently classified as instances of the "locative" construction by Pinker (1989) and Levin (1993):

(45) a. Pat loaded the wagon with the hay.
b. Pat sprayed the wall with paint.
c. They covered the wall with posters.
d. Pat adorned the tree with lights.
e. They tiled their bathroom with blue tiles from Mexico.
f. They stained the wood with an all-weather protector.
g. He speckled the canvas with dots.
h. He wrapped the present with tin foil.

It is possible to make a case that the examples in (45) are all licensed by the combination of two constructions: a causative construction and an independent construction headed by *with*. By recognizing that the transitive syntax and semantics in each of the examples in (45a-h) is license by a causative construction, we account for the well-known fact that the DO in these examples is necessarily interpreted as affected in some way; e.g, the truck must be interpreted to be full or otherwise affected in *Pat loaded the truck (with hay).* The same is not true for *Pat loaded hay ont the wagon* (Anderson 1971), which only entails that some hay is put on the wagon. By acknowledging that the examples in (45) are causative, the affected status of the DO is rendered completely non-mysterious and requires no ad hoc stipulation. This proposal has also been put forward by Rappapo and Levin (1988) and Gropen et al. (1991).

Iwata (2002), however, argues against a causative analysis of examples like *She loaded the wagon with hay.* He argues that a causal analysis should predict that the examples should necessarily be telic, which they are not:

(46) He sprayed the lawn with water for hours/in an hour.

However, others have noted that aspectual status is largely independent of causal status (Jackendoff 1996; Van Valin and LaPolla 1997). For example, clear instances of causal predications can also be used with either an atelic or telic interpretation:

(47) a. He mowed the lawn for hours/in an hour.
b. He cut the fabric for hours/in an hour.
c. He broke the walnuts for hours/in an hour.

A second argument Iwata suggests is that the *load* class of verbs differs from lexical causatives such as *cut, destroy, kill, break, open, melt* in that the former specifies the manner in which the resulting change is achieved. However, it is not obvious that *load* specifies the manner of the process any more than *melt* does. Things can be loaded manually or by machine, quickly or slowly; *load* only requires that the entities be put somewhere with substantial but limited space. Likewise while things can be melted by the sun or the stove, *melt* does specify that the change of state is caused by an application of heat. Other causative verbs are even more specific about the manner of the process including *strangle* (to kill by using hands around the neck), *murder* (to kill intentionally), and *bludgeon* (to injure by using forceful blows of a blunt object).

Moreover, while we claim that the *with* variant is causal, it does not follow that the verbs that appear in it ar necessarily interpreted causally when they appear in other constructions. The verbs need only be *compatible* wit a causal interpretation. When the verbs are not used causally (as in the *into/onto* variant), they do not imply that the location argument undergoes a change of state. In fact, because *load/spray* verbs are not always used as causative verbs, they by necessity must specify something besides a resultant endstate. Thus the observation tha alternating verbs of the *load* type necessarily encode more than causation is expected. We return to clarify the

distinction and relation between verbs and constructions in section 5.

Adopting then the idea that the examples in (47a-h) admit of a causal analysis, notice none of the examples in (47c-h) permit the alternation typically discussed as being relevant to *load* and *spray* (see also Pinker 1989):

(46) a. Pat loaded the hay onto the wagon.
b. Pat sprayed paint onto the wall.
c. *They covered posters onto the wall.
d. *Pat adorned lights onto the tree.
e. *They tiled blue tiles from Mexico onto their bathroom
f. *They stained an all-weather protector onto the wood.
g. *He speckled dots onto the canvas.
h. *He wrapped tin foil onto the present.

Thus in accord with the target syntax argument, it is preferable to generate (45a,b) directly instead of derivin them from (46a,b) due to the fact that there exist (45c-h) that have parallel syntax and semantics and cannot be derived from 46(c-h).

Turning our attention to the *with* phrase, it can be observed that while there is likely no monosymous sense for the preposition, there are a number of reasons to conclude that the *with* in t expressions in (47) is *related* to the instrumental adjunct *with* in (48). Formally it shares the sa preposition with prototypical instrumentals, not only in English, but also in a number of other languages (Rappaport and Levin 1988). Semantically, the entity encoded by the *with* phrase is in bo cases manipulated by the subject argument and serves to effect the change of state entailed by the sentence. In both cases, the argument of *with* serves as an *intermediary* in the causal chain.

(47) Pat loaded the wagon with hay.
(48) Pat broke the window with a hammer.

Below we repeat the examples in (45a-h) as (49a-h) and add to them examples (49i-m). It is difficu to draw a clear division in this set, exhaustively dividing them into clear instrumentals and clea non-instrumentals. In some cases (e.g., 49m) it is an independent tool that makes contact with the patient argument; in other cases (e.g., 49a) the entity serves to encode an argument of the verb that specifies something that is moved onto the patient. However, in still other cases, the argument bears both relations simultaneously (e.g., 49h-k). Again, in all cases, the *with* phrase encodes an entity that serves as an intermediary between agent and patient in a causal chain.

(49) a. Pat loaded the wagon with the hay.
b. Pat sprayed the wall with paint.
c. They covered the wall with posters.
d. Pat adorned the tree with lights.
e. They tiled their bathroom with blue tiles from Mexico.
f. They stained the wood with an all-weather protector.
g. He speckled the canvas with dots.
h. He wrapped the present with tin foil.
i. She broke the fever with cool washcloths.
j. She warmed the child with a blanket.
k. She loosened the cap with hot water.
l. She loosened the cap with a spoon.
m. She broke the window with a hammer.

It might be argued that the *with* phrase in (47) is crucially distinct from the instrumental *with* because it can appear with an additional instrumental phrase as in (50) (see Van Valin and LaPolla 1997):

(50)Pat loaded the wagon with the hay with a pitchfork.

However, as was noted in the case of temporal and locative adjuncts, it is possible to add an additional *with* instrumental phrase to prototypical instrumental adjuncts. In this case, the syntactically more peripheral phrase is understood to have broader scope than the more internal phrase.[8]

(51)a. With a slingshot he broke the window with a rock.
b. The robot opened the door with a key with its robotic arm.

We are assuming that the additional *with* phrase heads an adjunct in these cases; we refine our understanding of arguments and adjuncts in section 5 below. Also in section 5, we acknowledge certain ways in which the *with* phra of *load* patterns differently than the *with* phrase in certain other examples in (49a-m). It is argued that these distinctions naturally follow from lexical semantic differences in the verbs involved and do not necessitate treating the *with* phrases as instances of unrelated constructions.

Still, it could be that instead of appealing to the notion of an *intermediary* to capture what is shared by the *with* phrases in (49a-m), a better analysis of these uses of *with* would be one that appeals to the idea of *grammatical chains* (Heine 1992). One use of *with* may be closely related to another, that one to a third and so on; that does not necessarily imply that the first and third a themselves of the same type. To assume that they are would be to fall prey to the Slippery Slope Fallacy; e.g., while a child is much the same from one day to the next, it does not follow that there is no distinction between a boy and a man. While a full analysis of *with* is outside the scop of the present paper, it is argued here that the relationship among various uses of *with* deserves exploration and cannot be dismissed out of hand.

## 5. The role(s) of the verb

In this section, we address the question of how to account for the overlap in meaning in paraphrases and we address the question of why the overt interpretation of instances of the same construction may differ, and may allow distinct ranges of paraphrases. One key to these questions lies in the recognition that there is more to t interpretation of a clause than the argument structure construction used to express it. The overall interpretati is arrived at by integrating the argument structure construction with the main verb and various arguments, in light of the pragmatic context in which the clause is uttered.

There is a growing recognition that it is important to recognize a distinction between the frame semantics associated with a verb and the set of phrasal patterns or argument structure constructio that are available for expressing clauses (Gleitman et al. 1995; Goldberg 1992, 1995, to appear; Hovav and Levin 1998; Iwata 2000; Jackendoff 1997, 2002; Kay Ms-2001; Pinker 1994).

Following Goldberg (1992, 1995) the slots in the argument structure constructions are referred to "argument roles." That is, phrasal constructions that capture argument structure generalizations have argument roles associated with them; these often correspond roughly to traditional thematic roles such as *agent*, *patient*, *instrument*, *source*, *theme*, *location*, etc. At the same time, because they are defined in terms of the semantic requirements of particular constructions, argument roles in this framework are more specific and numerous than traditional thematic roles (see also Jackendoff 1990, 2002).

Argument roles capture surface generalizations over individual verbs' participant roles. That is, each distinct sense of a verb is conventionally associated with rich frame semantic meaning that in part specifies certain *participant roles*: the number and type of slots that are associated with a given sense of a verb. A subset of those roles, namely those roles which are lexically *profiled*, are obligatorily expressed, or, if unexpressed, must receive a definite interpretation.[9] Lexical profiling, following the general spirit of Langacker (1987, 1991), is designed to indicate which participant roles associated with a verb's meaning are obligatorily accessed, functioning as focal points within the scene, achieving a special degree of prominence. Fillmore (1977) similarly notes that certain participant roles are obligatorily "brought into perspective" achieving a certain degree of "salience." The notion of lexical profiling is intended to be a semantic one: it is a stable aspect of a word's meaning, and can differentiate the meaning difference between lexical items—cf. *buy* vs *sell* (Fillmore 1977) or *rob* vs *steal* (Goldberg 1995). Participant roles may be highly specific and are often unique to a particular verb's meaning; they therefore naturally capture traditional selectional restrictions.

Two general principles can be understood to constrain the ways in which the participant roles of a verb and the argument roles of a construction can be put into correspondence or "fused": the Semantic Coherence Principle and the Correspondence Principle (Goldberg 1995, to appear).

The Semantic Coherence Principle ensures that the participant role of the verb and the argument rc of the construction must be semantically compatible. In particular, the more specific participant role of the verb must be construable as an instance of the more general argument role. General categorization processes are responsible for this categorization task and it is always operative. This principle follows from the idea that argument structure constructions are learned by generalizing over the semantics of instances of the pattern used with particular verbs (e.g., Tomasello 1992, 2000; Goldberg 1999).

As is the case with lexical items, only certain argument roles are profiled. In the case of simple sentences, only roles that are realized as Subj, Obj, or the second object in ditransitives are considered profiled. These are the same grammatical relations that receive a special status in mos theories as the set of "terms" which correspond to "core," "nuclear" or "direct" arguments Roles encoded by the subject, object or second object grammatical relations are afforded a high degree of discourse prominence, being either topical or focal in the discourse (see Keenan 1976, 1984; Comrie 1984; Fillmore 1977, Langacker 1987 for arguments to this effect.). Specifically the Correspondence Principle states that profiled participant roles of the verb must be encoded by profiled argument roles of the construction, with the exception that if a verb has three profiled roles, one can be represented by an unprofiled argument role (and realized as an oblique argument) The Correspondence Principle is a default principle.

The intuition behind the Correspondence Principle is that lexical semantics and discourse pragmati are in general aligned. That is, the participants that are highly relevant to a verb's meaning (t profiled participant roles) are likely to be the ones that are relevant or important to the discourse, since this particular verb was chosen from among other lexical alternatives. In particular, the Correspondence Principle requires that the semantically salient profiled participa roles are encoded by grammatical relations that provide them a sufficient degree of discourse prominence: i.e. by profiled argument roles. As a default principle, the Correspondence Principle overridden by particular constructions that specify that a particular argument be deemphasized and expressed by an oblique or not at all. Passive, for example is a construction that overrides the Correspondence Principle and insures that a normally profiled role (e.g., agent) be optionally expressed in an oblique *by* phrase. See Goldberg (to appear) for discussion of other constructions that serve to override the Correspondence Principle.

5.1. Accounting for paraphrase relations

We are now in a position to address the question of how the overlap in meaning between alternants accounted for. The shared meaning can be attributed directly to the shared verb involved. That is, the verb evokes the same frame semantic scene and the same profiled participant roles. For example if we assign the participant roles of *load* the labels loader, loaded-theme and container, we can s that these roles line up with the roles in the caused motion construction and causative + *with* constructions as follows:

(52) Caused-motion (e.g., *Pat loaded the hay onto the truck*)

| CAUSE-MOVE (cause | theme | path/location) |
|---|---|---|
| *Load* (loader | loaded-theme | container) |

(53) Causative construction + *with* construction (e.g., *Pat loaded the truck with hay)*

| CAUSE (cause | patient) + INTERMEDIARY(instrument) | |
|---|---|---|
| *Load* (loader | container | loaded-theme) |

All three of *load*'s roles are profiled. This includes the loaded-theme role even though that role is optional. When optional, it receives a definite interpretation as indicated by the strangeness the following mini-conversation (see Fillmore 1986 for tests to distinguish definite from indefini omission):

(54) She loaded the trucks. #I wonder what she loaded onto the trucks.

Because all three roles are profiled, one of the roles may be expressed as an oblique argument, in accordance wi the Correspondence Principle. The Semantic Coherence Principle insures that only semantically compatible roles m

be fused. As indicated above, the loaded-theme role of *load* may either be construed to be a type of theme as in (52) or an intermediary as in (53). The container role can either be construed to be a path/location as in (52) a patient role as in (53). Construing the verb's roles as instances of different argument roles is what results in the different semantic construals of the two constructions.

On this view, there is no need to say that the *with* phrase itself designates a theme relation (cf. e.g., Jackendoff 1990). Instead, the fact that the hay is interpreted to be loaded onto the truck even in the *with* variant is attributed, not to the argument structure construction, but to the specifications of the verb *load*.

5.2. Arguments and Adjuncts

Recognizing that the verb has its own profiled participant roles that may be distinct from the argument roles associated with an argument structure construction allows us to recognize the following four possibilities:

| | Role of argument structure construction | Not a role of argument structure construction |
|---|---|---|
| profiled/ obligatory participant role of verb | a) ARGUMENT of verb and construction<br>*He* devoured *the artichokes*.<br>*She* gave *him* a letter.<br>*She* put *the package on the table*. | b) ARGUMENT contributed by the verb<br>She loaded the wagon *with hay*. |
| not a profiled/obligatory participant of verb | c) ARGUMENT contributed by construction<br>He baked *her* a cake.<br>She kicked *him* a ball.<br>She sneezed *the foam off the cappuccino*. | d) Traditional ADJUNCT<br>He baked a cake *for her*.<br>She broke the window *with a hammer*.<br>She swam *in the summertime*. |

Figure 1: possible routes to argument status

The most common, prototypical case is one in which the profiled participant roles of the verb line up isomorphically with the argument roles of an argument structure construction. This is represent in cell (a) in the chart above. Another familiar case is one in which a non-profiled role is expressed by an adjunct construction as represented in cell (d).

In other cases, there is a mismatch between the verb's and argument structure construction's roles. Sometimes an argument role may not correspond to an independent obligatory participant role of the verb sense. For example, when the ditransitive construction is combined with verbs of creation, the recipient role is associated only with the construction; we do not need to assume th verbs of creation lexically specify a potential recipient. The same is true for certain verbs of motion as well. *Kick* for example only has two profiled participant roles; the recipient argument i *She kicked him the ball* is added by the construction.

The fourth logical possibility is that a profiled participant role of the verb is expressed by wha is normally considered to be an adjunct phrase. As suggested in the (b) cell of the chart above, i seems appropriate to identify the *with* phrase that appears with *load* as an instance of this type. discussed in the previous section, there are reasons to class the *with* phrase as a type of "intermediary" construction and other instances of the same construction (including what are usually referred to as instruments) normally function as adjuncts (in being omissible, able to appear sentence initially, after a clear adjunct such as *yesterday*, etc). However we have seen tha the loaded-theme participant role of *load* is a profiled role. Because the *with* phrase codes a profiled role but is expressed by an phrase that is normally an adjunct, we might expect the behavior of this argument to fall somewhere in between that of traditional arguments and tradition adjuncts. In (55) we see that this is the case. While placing a clear adjunct before the *with* phra is not crashingly bad in (55a), it is slightly less felicitous than the corresponding example in (55d). Other examples pattern similarly, depending on whether the participant coded by *with* corresponds to a profiled participant role of the verb or not:

(55) a. ?Pat loaded the wagon yesterday with hay.
b. ?Pat adorned the tree yesterday with lights.

c. Pat hit the wall yesterday with a stick.
d. Pat broke the window yesterday with a hammer.

## 5.3 Accounting for differences among instances of the same basic construction type

Rappaport and Levin (1985, 1988) have argued that the *with* phrase in *Pat loaded the truck with hay* is crucially distinct from instrumentals on the basis of the claim that certain related sentences receive different acceptability judgments. Several of their test frames can be seen to distinguish arguments from adjuncts. For example, consider (56) which invokes the classic *do so* test in which arguments are within the scope of *do so* VP anaphora, and adjuncts are outside it (cited judgments theirs):

(56)a. Liza covered the baby with a blanket and then Henry did so with a quilt.
b. *Liza loaded the wagon with hay and then Henry did so with straw. (Rappaport and Levin 1985)

Interestingly enough, *cover* was contrasted with *load* in (56a,b) by Rappaport and Levin on the assumption that the former licenses an instrumental while the latter licenses a distinct type of theme argument. However, in later work, Levin (1993) classifies *cover* as licensing the *same* construction as *load the wagon with hay*.

Of course there is a potential problem with (56b) which results from our world knowledge. It isn't possible to load a wagon if it is already loaded. Notice (56b) is improved if we assume that the hay Liza loaded is removed before Henry puts straw onto the wagon. To the extent that there remains any difference in acceptability between (56a) and (56b), the difference may be attributed to the fact that the intermediary role corresponds to a profiled participant role of *load* but to an unprofiled participant role of *cover*. That is, *cover*, has three participant roles, the coverer, the cover, and the covered entity. The cover role is not profiled—it is not obligatory because its specific characteristics are typically not highly relevant. The goal of covering something is to keep that thing warm or to hide it. Exactly what is used to keep something warm or hide it is typically not essential to the discourse. Notice the cover role is easily omitted with an indefinite interpretation:

(57) She covered the baby. I wonder what she covered the baby with.

In this way, many differences can be attributed to the lexical semantics of the verbs involved; they do not necessarily necessitate treating the *with* phrases themselves as critically distinct.

To summarize, categorizing *load with* expressions as a type of causative + intermediary phrase, does not require that we be blind to any potential differences between uses with particular verbs. We need to account for verb meaning anyway, so it makes sense to look to verb meaning to determine whether differences in interpretation or in the range of possible paraphrases can be straightforwardly accounted for by it.

## 6. What is meant by surface form

In this section we clarify what is meant by *surface form*. Surface form need not specify a particular word order, nor even particular grammatical categories, although there are constructions that do specify these features. Adopting the notation of Goldberg (1992,1995) we might characterize the ditransitive construction as follows:

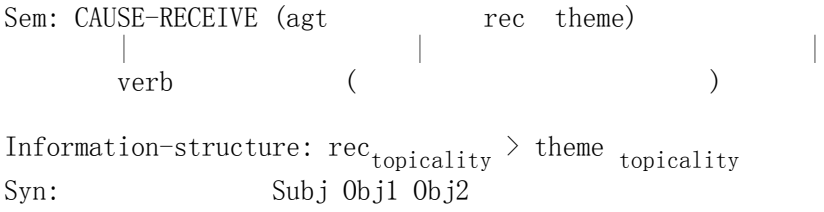


Figure 2: The Ditransitive Construction

The first line provides the semantics of the construction. The ditransitive involves a predicate with three arguments; these three arguments are labeled "agent" "recipient" and "theme" for convenience but there is no assumption that these thematic role labels are drawn from a universal limited set. Instead the roles are determined by the meaning of the construction. In this case the main predicate is "CAUSE-RECEIVE" or more informally "give," and the three argument roles correspond to the three major entities involved in the semantics of giving.

As is the case with other constructions, including words and morphemes, constructions typically allow for a range of closely related interpretations. The "CAUSE-RECEIVE" predicate associated with the ditransitive construction is subject to systematic variation depending on which verb clas it interacts with. Thus the construction can be used to convey "intention to cause to receive" when used with verbs of creation; "refuse to cause to receive" when used with verbs of refusal, etc. (see Goldberg 1992, 1995; Kay Ms-2001, Leek 1996 for details and slightly differing analyses)

As indicated on the diagram in Figure 2 by the lines between the argument roles of the constructio and the role array of the verb, the verb and its own arguments are integrated or fused with the predicate and arguments of the construction. Solid lines are used to indicate that the argument ro of the construction must fuse with an independently existing participant role of the verb (recall cell a in Figure 1). Dashed lines are used to indicate that the argument role of the construction may be contributed by the construction without a corresponding role existing as part of the inhere verbal meaning. That is, a corresponding participant role may exist, but need not (recall cell c i Figure 1). The information structure row of information was not explicitly represented in earlier work, but its addition is straightforward. The specification noted is that the recipient argument should be more topical than the theme argument.

Finally, the linking of roles to grammatical relations is provided. See Goldberg (1995: chapter 4) for arguments that both generalizations and exceptional mappings can be captured by positing construction-specific linking generalizations when constructions are related within an inheritance hierarchy.[10]

From the representation above, it should be made clear that the reference to form in the definitio abstracts away from specifics of surface form that can be attributed to other constructions. That is, an actual expression or *construct* typically involves the combination of at least half a dozen different constructions. For example, the construct in (57) involves the list of constructions giv in (58a-g):

(57) What did Mina buy Mel?

(58) a. Ditransitive construction
b. Q-construction
c. Subject-Auxiliary inversion
d. VP construction
e. NP construction
f. Indefinite determiner construction
*g. Mina, buy, Mel, what, do* constructions

Constructions are combined freely to form actual expressions (constructs) as long as they can be construed as not being in conflict (invoking the notion of construal here is intended to allow for processes of *coercion*, see Michaelis (to appear)).

Thus, the same ditransitive construction is involved in active declarative form as well as in topicalized, clefted or questioned forms. That is, the recipient argument is an Object whether or not it appears directly after the verb or whether it appears as a distantly instantiated question word. It is, for example, the (non-echo) question construction that determines the fact that the w word appears sentence initially in English.[11]

## 7. Conclusion

The arguments in this paper should not be taken to imply that possible paraphrase relations play *no* role in the learning, processing or representation of language. The essentially structuralist observation that the semantic interpretation of one linguistic construct tends to be affected by the existence of possible alternatives, receives empirical support from a number of studies (e.g., Lambrecht 1994; Lambrecht and Polinsky 1997; Moore and Ackerman 1999; Spencer 2001).

In other work I have argued that the statistical use of paraphrases in actual discourse contexts i

critical to unlocking Baker's paradox of partial productivity (Goldberg 1993, 1995:122-125, see also Brooks and Tomasello 1999; Pinker 1984; Regier 1996). Paraphrase relations can also be seen t be relevant to on-line choices made in production (Bock, Loebell, and Morey 1992; Bock and Loebell 1990; Bock 1986).

However, it is less clear that one particular paraphrase should have a privileged status, nor that it is profitable to analyze one phrasal pattern solely by implicit or explicit reference to anothe It has been argued here that by carefully examining a fuller range of surface phenomena, broader generalizations, surface generalizations in the form of Argument Structure Constructions, are revealed.

In accounting for similarities among alternative expressions and dissimilarities among instances o the same argument structure construction, careful attention must be given to the verb which is the same in the former and different in the latter. Recognizing surface generalizations surrounding argument structure (i.e., argument structure constructions) is important in that it leads to the recognition of generalizations in language that might otherwise be overlooked. But it is equally important to bear in mind that the meaning of a clause is more than the meaning of the Argument Structure Construction used to express it. Individual verbs as well as particular arguments and context must be factored in to the equation.

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[2] See also Langacker 1987b for arguments to the effect that the semantics of Ns are distinct from that of Ss

[3] Bolinger, an early advocate of the Surface Generalization Hypothesis put the problem with ignoring semantic differences between alternative formal patterns this way:

> [It is often considered normal] for a language to establish a lunacy ward in its grammar o lexicon where mindless morphs stare vacantly with no purpose other than to be where they are….contemporary linguistics has carried the fantasy to new heights, and expanded it with new version of an old vision, that of synonymy: not only are there mindless morphs, but ther are mindless differences between one construction and another (Bolinger 1977: ix).

See also Haiman 1985; Langacker 1987a; Verhagen 1986; Wierzbicka 1988; Michaelis and Ruppenhofer 2001)

[4] See Goldberg (1992, 1995: 146-147) for arguments that the first Object in ***The paint job gave the car a higher sales price*** is based on a Causal Events as Transfers metaphor. The constraint that the recipient must be animate holds of the source domain of the metaphor.

[5] Goldberg (1995:150) argues that even instances such relatively marked examples such as ***Cry me a river*** can be related to the notion of giving via a metaphorical extension.

[6] The lack of an isomorphism between form and meaning does not undermine the idea that form-meaning correspondences are psychologically real any more than the fact there exist lexical ambiguities undermines the idea that lexical items are psychologically valid form-meaning pairings (see Nakajima 2002 for an example of this confusion).

[7] Recognition of the fact that "load onto" type expressions are instances of the more general caused motion construction serves to solve a certain paradox in the acquisition literature. It has often been observed that children are more likely to make overgeneralizations such as those in (a) than they are to overgeneralize the pattern with ***with*** as in (b):

a. She filled the water into the cup. (relatively common)
b. She poured the cup with water. (rare)

The explanation for this has been thought to be mysterious because it has been claimed that far fewer verbs appe in the "into" variant than the "with" variant (Gropen et al. 1991). The overall frequency of the "into" variant was thought to be less than the "with" variant as well. However, once we recognize that the "into" variant is actually part of a much larger generalization, the caused motion construction, it becomes clear that the frequencies that matter are the frequencies associated with that broader generalization as compared with the causative plus instrumental adjunct pattern. Sethuraman (2002: 146) has calculated just these statistics in the Bates, Bretherton, and Snyder (1988)corpus of speech between twenty seven mothers and their 28-month old childre The children produced a total of 42 caused motion tokens compared with 2 transitive + ***with*** tokens. Mothers produced 199 caused motion tokens compared with 25 transitive + ***with*** tokens. If we extrapolate from these patter is seems that the caused motion construction is 8-20 times more frequent than the causative + ***with*** adjunct construction. Figures for the type frequencies involved in the causative + ***with*** variant are not available, but t number could not possibly be higher than the token frequencies (since each unique type requires a new token), an is likely much lower. The type frequency of the caused motion construction in children's speech is 16; in the mothers' speech it is 40. Again the ***token*** frequencies for the ***with*** construction are 2 and 25, respectively. Sin type frequency is correlated with productivity (Bybee 1985, 1995), the fact that children more readily overexten the caused motion construction than the causative + ***with*** phrase is to be expected.

[8] Fillmore (1968) had actually claimed that two instruments may not co-occur on the basis of examples such as the following:

a) *The key opened the door with a screwdriver.

However, the ***with*** phrase requires that the relevant object (here the screwdriver) be manipulated by the subject argument. It is because a key cannot manipulate a screwdriver that the sentence is unacceptable.

[9] This generalization is true for English. In many other languages profiled arguments are omissable as long as they are given and non-focal in the context. Typically in these languages, however, lexically profiled roles are also expressed by a small set of core grammatical relations, when they are expressed.

[10] By appealing to grammatical relations instead of grammatical categories in the syntax of this construction, we do not intend that grammatical categories are irrelevant in general, contra what assumed in a critique by Newmeyer (to appear). In the present case, grammatical relations are foun to be more perspicuous because they serve to distinguish the ditransitive from the construction involved in a:

(a) She considered him a fool.
(b) She considered him crazy.

Expression (a) is an instance of a construction that has the grammatical relations: Subj V Obj PRE (see Garcia 2001-Ms). It just so happens that predicates and second objects can both appear as NPs

PRED, however, can also be realized as an AP as in (b).

[11] Given the syntactic specifications of the ditransitive construction given above, a separate but related construction is required to account for passives of ditransitives since such passives do not involve the same linking of grammatical functions to roles. Supporting this idea that there exists a passive-ditransitive construction is the fact that the actual form of the passive-ditransitive is not strictly predictable. At one time in the history of English, no passive was allowed at all. In some languages, both the recipient and patient arguments can passivize, where as in English only the recipient argument can be passivized (Alsina and Mchombo 1990; Polinsky 1998). The fact that there is something non-predictable about the passive-ditransitive entails that a construction be posited. If it were possible to predict the specifics of passive-ditransitive expressions in some way, an alternative route would be possible. The alternative would be to define the ditransitive construction more abstractly such that it would does not specify that there are two objects overtly realized, nor the specifics of the mapping between thematic roles and grammatical functions; instead the only syntactic or linking specification would be that there is an extra object (Kay manuscript 1997). In this way, it would be possible to unify the highly abstract “extra object” construction with passive without positing an additional ditransitive-passive construction.

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