

# Towards a Lexical-Constructional Account of the Locative Alternation

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## 1 Introduction

This paper investigates the factors determining a verb's ability to participate in what has come to be known as a sub-type of the locative alternation, namely the *spray-load* alternation as in the following examples.<sup>1</sup>

- (1) a. Joe loaded boxes onto the truck. b. Joe loaded the truck with boxes.
- (2) a. Lila sprayed paint onto the wall. b. Lila sprayed the wall with paint.

Following Fillmore's (1968) discussion of verbs exhibiting different argument realization patterns, a number of syntactic studies have analyzed the *spray-load* alternation (e.g., Pinker 1989, Levin 1993, Dowty 2000) in different ways. One account that differs from primarily syntactically oriented analyses is Goldberg's (1995) Construction Grammar approach. It proposes that multiple argument realization patterns are best accounted for in terms of independently existing argument structure constructions that specify how a verb's arguments may be expressed. On this view, the locative variants in (1a) and (2a) and the *with*-variants in (1b) and (2b) are licensed by different types of argument structure constructions in combination with lexical entries representing the meanings of *load* and *spray*.

This paper offers a critical review of Goldberg's constructional account of the locative alternation in order to see whether it is capable of accounting for the full range of argument realization patterns of verbs participating in the *spray-load* alternation. The remainder of the paper is structured as follows. Section two gives an overview of Goldberg's analysis of sentences such as in (1) and (2). Section three discusses data that are problematic for Goldberg's constructional analysis of the locative alternation. Section four outlines an alternative approach towards the locative alternation. It suggests a less prominent role for independently existing constructions in determining a verb's ability to participate in the locative alternation.

## 2 Profiling as a determiner for argument realization

Goldberg (1995) assumes that the interaction of verbal semantics with constructional semantics accounts for different argument realization patterns.<sup>2</sup> In her view, grammatical constructions are “taken to be the basic units of language” (1995: 4) that “can be viewed as free-standing entities, stored within the lexicon alongside lexical items, idioms, and other constructions that may or may not be partially filled.” (1995: 221) Constructions are “pairings of syntax and semantics that can impose particular interpretations on expressions containing verbs which do not themselves lexically entail the given interpretation” (1995: 220).<sup>3</sup>

Following Pinker’s (1989) classification of verbs that participate in the locative alternation into five classes, Goldberg (1995) proposes that the members of each class differ with respect to whether they are compatible with different types of argument structure constructions which map the verb’s semantics to the syntactic level. According to this analysis, verbs lexically determine which of their argument roles are profiled (cf. Langacker 1987).<sup>4</sup> The difference in profiling determines whether a verb’s semantics is compatible with the semantics of a construction and how its roles are mapped to the syntactic level.

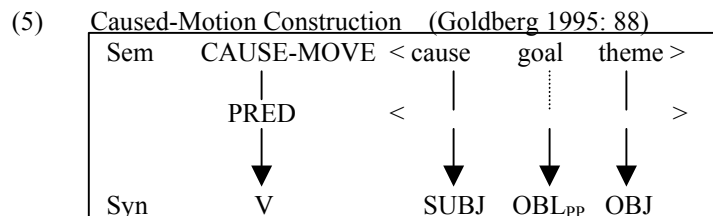
The first verb class discussed by Goldberg is Pinker’s (1989) *slather*-class which includes verbs describing simultaneous forceful contact and motion of a mass against a surface, such as *slather*, *smear*, *brush*, *dab*, *daub*, and *smear*. Citing the data in (3), Goldberg points out that members of this verb class exhibit a particular distribution of their arguments.

- (3) a. Sam slathered shaving cream onto his face.  
b. Sam slathered his face with shaving cream.  
c.\*Sam slathered shaving cream.  
d.\*Sam slathered his face.  
e.\*Shaving cream slathered onto his face. (Goldberg 1995: 176)
- (4) slather < **slatherer**, **thick-mass**, **target** > (Goldberg 1995: 176)

Goldberg explains the acceptability of (3a) and (3b) and the unacceptability of (3c) – (3e) with the interaction of the lexical entry of *slather* in (4) with different grammatical constructions. The entry in (4) lists the participant roles of *slather*. Bold print of the three participant roles illustrate that they are profiled and thus need to be expressed at the syntactic level. Goldberg points out that *slather*

“is compatible with both the caused-motion construction and the causative-plus-*with*-adjunct constructions in the following way. Both constructions allow all three roles to be expressed, so there is no problem satisfying the constraint that profiled roles are obligatory. Since there are three profiled participants, one may be fused with a non-profiled argument role [...]” (Goldberg 1995: 176-77)

The following diagram illustrates how the verbal semantics of *slather* in (4) interact with Goldberg's caused-motion construction.



According to Goldberg, the caused-motion construction is an independently existing construction which associates a specific syntactic configuration with a specific semantics. The top line of the box in (5) represents the construction's semantics. It contains the construction's semantic arguments (constructional roles) and represents their semantic relation to each other ('X CAUSES Y TO MOVE Z'). Solid lines between the semantic roles and roles in the array of the predicate (PRED, in the middle line) indicate that the constructional roles must fuse with an independently existing participant role provided by the verb. Dotted lines indicate that the construction is capable of providing additional participant roles, if needed. The line headed by PRED in (5) contains the construction's open slots into which the verb's participant roles fuse.<sup>5</sup> Once the verb's participant roles are fused with the constructional roles, the semantic roles are mapped to syntax as indicated by the arrows leading from the middle line to the bottom line in (5). When the verb's semantics in (4) interact with the caused-motion construction in (5), the verb's participant roles get inserted into the construction's predicate role array and subsequently mapped to syntax. According to Goldberg, this is because the verb's participant roles are compatible with the construction's 'X CAUSES Y TO MOVE Z' semantics and can thus fuse with the construction.

Verbs belonging to the *heap-* and *cram-*class in (6) and (7) exhibit a similar distribution of arguments as those of the *slather-*class in (3).<sup>6</sup> This similarity leads Goldberg to posit similarly structured lexical entries in (8) and (9).

- (6)
- a. Pat heaped mash potatoes onto her plate.
  - b. Pat heaped her plate with mash potatoes.
  - c. \*Pat heaped mash potatoes.
  - d. \*Pat heaped her plate.
  - e. \*The mash potatoes heaped onto her plate. (Goldberg 1995: 177)
- (7)
- a. Pat crammed the pennies into the jar.
  - b. Pat crammed the jar with pennies.
  - c. \*Pat crammed the pennies.

- d. \*Pat crammed the jar.
- e. \*The pennies crammed into the jar. (Goldberg 1995: 177)

(8) heap < **heaper, location, heaped-goods** >

(9) cram < **crammer, location, crammed-goods** > (Goldberg 1995: 177)

The fourth class of verbs discussed by Goldberg are so-called *load*-verbs which describe situations in which “a mass of a size, shape, or type defined by the intended use of a container (and not purely by its geometry) is put into the container, enabling it to accomplish its function.” (1995: 176) *Load*-verbs differ from verbs belonging to other classes participating in the locative alternation in that they may occur “without an overtly expressed theme role” (Goldberg 1995: 178) as in (10e).

- (10) a. She loaded the wagon with the hay. d.??Sam loaded the hay.
- b. She loaded the hay onto the wagon. e. Sam loaded the truck.
- c. \*The hay loaded onto the truck. (Goldberg 1995: 178)

Goldberg captures the argument distribution of *load*-verbs by defining lexical entries such as in (11) which specifies that the theme role “is allowed to be a definite null complement” (Goldberg 1995: 178). That is, although the verb specifies that all three participant roles need to be profiled, it allows the theme role to be omitted in cases in which context provides sufficient information to license the omission (cf. Fillmore 1986). The square brackets in (11) indicate that although *load* profiles the theme argument it may be omitted.

(11) load < **loader, container, [loaded-theme]** > (Goldberg 1995: 178)

The last class of locative verbs discussed by Goldberg includes verbs of the *spray*-class (e.g., *spray, splash, splatter, and sprinkle*). These verbs differ from members of the other four classes in that some verbs belonging to this class, such as *splash* in (12) – (13), require overt expression of both the liquid and the target roles. Furthermore, (14) illustrates that *splash* does not require its agent role to be overtly expressed.

- (12) a. Chris splashed the water onto the floor.
- b. Chris splashed the floor with water. (Goldberg 1995: 178)

- (13) a. \*Chris splashed the water.
- b. \*Chris splashed the floor. (Goldberg 1995: 178)

- (14) Water splashed onto the lawn. (Goldberg 1995: 178)

The distribution of arguments of *splash* leads Goldberg to postulate the lexical entry in (15). It captures the fact that *splash* does not require its agent role to be overtly expressed (it is not profiled which is indicated by non-bold print) and that it requires both the target and the liquid roles to be overtly realized (they are profiled, which is indicated by bold print).

(15) splash < splasher, **target**, **liquid** >

A second subclass of *spray*-class verbs includes verbs such as *spray* which generally exhibit a distribution of arguments similar to verbs belonging to the *splash*-subclass with one exception illustrated in (16).

(16) The skunk sprayed the car [ ]. (Goldberg 1995: 178)

This example shows that *spray* does not require its profiled liquid role to be overtly realized in cases in which it is deducible from context. In other words, the liquid role may be a definite null complement in cases in which both the speaker and hearer have knowledge about the types of liquids that are being sprayed onto the target. Goldberg captures the special null complementation status of the liquid role of *spray* with the following lexical entry.

(17) spray < sprayer, **target**, [**liquid**] > (Goldberg 1995: 178)

This section has shown that Goldberg (1995) typically encodes verbal semantics in terms of a single verb meaning listing the types of semantic roles associated with a verb. For each role, a lexical entry specifies whether it is profiled or non-profiled and whether it is allowed to be a definite null complement. Different grammatical constructions fuse with a verb's meaning to license argument structure alternations such as the locative alternation.

### 3 The role of grammatical constructions in determining argument realization patterns

In analyzing the locative alternation, Goldberg repeatedly stresses the importance of grammatical constructions in determining a verb's argument realization patterns. This section turns to a critical discussion of the role of grammatical constructions in accounting for the locative alternation.

#### 3.1 Licensing *with*-variants

Goldberg attributes the licensing of locative variants (e.g., (1a), (2a)) to the fusion of verbal semantics with the caused-motion construction. However,

Goldberg does not go into details when it comes to analyzing the *with*-variants associated with the same verbs (e.g., (1b), (2b)). She briefly points out that

“*Slather* is compatible with the causative-plus-*with*-adjunct since the target can be construed as a type of patient, in that the entity which is slathered can be construed as totally affected. The *with*-phrase is obligatory even though it is an adjunct, because the profiled status of the verb’s thick-mass role requires that the role be expressed.” (Goldberg 1995: 177)

While Goldberg’s analysis of the causative-plus-*with*-adjunct constructions is used to explain the distribution of arguments with *slather* in (18), it is problematic when it comes to accounting for the distribution of arguments of other verbs belonging to the *slather*-class, for example *brush* as in (19).

- (18) a. Sam slathered shaving cream onto his face.  
b. Sam slathered his face with shaving cream.  
c. \*Sam slathered shaving cream.  
d. \*Sam slathered his face.  
e. \*Shaving cream slathered onto his face. (Goldberg 1995: 176)
- (19) a. Joe brushed tooth paste onto his teeth.  
b. Joe brushed his teeth with tooth paste.  
c. \*Joe brushed tooth paste.  
d. Joe brushed his teeth.  
e. \*Tooth paste brushed onto his teeth.

The examples in (18) and (19) illustrate that although *brush* belongs to the same semantic class as *slather*, it exhibits different specifications as to which semantic roles need to be obligatorily realized at the syntactic level. To be more precise, *slather* requires the mass role to be obligatorily realized as a *with*-adjunct in (18b, d). In contrast, *brush* does not exhibit this requirement as (19d) illustrates. The question arises how Goldberg’s *with*-adjunct construction is capable of ruling out examples such as (18d) while allowing examples such as (19d), given that the two verbs belong to the same semantic class and should subsequently exhibit similar profiling requirements.

Another point that is problematic for Goldberg’s *with*-adjunct analysis is her assumption that the causative-plus-*with*-adjunct constructions fuse with verbs which have a semantic role that can be construed as a patient role. Take, for example, *load* and *throw* in the following examples.

- (20) a. load < **loader**, **container**, [**loaded-theme**] >  
b. She loaded hay onto the wagon. (CAUSED-MOTION)  
c. She loaded the wagon with hay. (CAUS. & *WITH*-ADJUNCT)

- (21) a. throw < **thrower, container, thrown-theme** >  
 b. She threw hay onto the wagon. (CAUSED-MOTION)  
 c. \*She threw the wagon with hay. (CAUS. & *WITH*-ADJUNCT)

Both verbs are specified for three profiled participant roles, namely an agent (loader and thrower, respectively), a container, and a theme.<sup>7</sup> Due to their verbal semantics, both verbs may fuse with the caused-motion construction as can be seen in (20b) and (21b). The fusion is made possible because in both cases the loader and the thrower can be construed as a cause, the container can be construed as a type of goal-path, and the loaded-theme as well as the thrown-theme can be construed as particular types of themes because they undergo a change of location.

Next, compare what happens when *load* and *throw* interact with the causative-plus-*with* constructions. In (20c), the verb's participant roles fuse with the causative construction because the loader can be construed as a cause and the container role can be construed as a type of patient (the entity which is loaded on can be construed as totally affected). Finally, the profiled status of the theme role requires it to be obligatorily realized, which is guaranteed by the *with*-adjunct construction.

We now turn to example (21c). The important question at this point is: what part in Goldberg's analysis accounts for the unacceptability of (21c)? Note that *throw* in (21a) has a participant role array that is very similar to that of *load* in (20a). That is, the thrower role in (21c) can be construed as a cause and the container role on throw's role array can be construed as a type of patient because the entity on which something is thrown can be construed as totally affected. Moreover, the profiled theme role of *throw* specifies that it has to be obligatorily realized by any construction(s) with which it fuses. Since all three participant roles of *throw* in (21a) can be construed along the same lines as the participant roles of *load* in (20a), one would expect that *throw* should also have a *with*-variant counterpart to the locative variant licensed by the caused-motion construction in (21b). However, as the unacceptability of (21c) illustrates, this is not the case. The comparison of the types of constructions licensed by *load* and *throw* shows that Goldberg's constructional account of the *with*-variant does not provide us with a straightforward explanation as to why the causative-plus-*with*-adjunct constructions license the acceptable *with*-variant in (20c) without ruling out the unacceptable *with*-variant in (21c). The problem of licensing acceptable examples while ruling out unacceptable examples is also evident when it comes to profiling requirements of verbs belonging to other semantic classes, as the following section illustrates.

### 3.2 Different profiling properties of verbs in the same semantic class

Goldberg suggests that verbs which are members of one of the five narrowly defined classes also exhibit similar profiling properties. For example, with respect to verbs belonging to the *heap-* and *cram-* classes, she notes that “verbs of these classes must have three profiled participant roles” (1995: 177). To illustrate her point, Goldberg cites (22a) and (22b) as examples supporting the profiling properties of *heap* in its lexical entry in (23).

- (22) a. \*Pat heaped mash potatoes.  
b. \*Pat heaped her plate.

(23) heap < **heaper, location, heaped-goods** > (Goldberg 1995: 177)

(24) stack < **stacker, location, stacked-goods** >

Based on Goldberg’s claim that all members of a verb class exhibit similar profiling properties, (24) illustrates the structure of the lexical entry for *stack*, another verb belonging to the *heap*-class. Since all participant roles of *stack* are profiled, one would expect that *stack* requires all three roles to be realized at the syntactic level. However, this is not always the case, as the following corpus-based examples from the British National Corpus illustrate.

(25) ‘I must say for an adolescent Venus fly-trap she’s got tons of style,’ Nicola said as, elbow to elbow, she and Emily stacked the plates. (BNC)

(26) Ruth heard Grant talking to her in the office – which was only a partitioned off slice of the kitchen, so Ruth could hear every word as she stacked the dishwasher. (BNC)

In (25) *stack* does not occur with the location role and in (26) it does not occur with the stacked-goods role. According to Goldberg’s analysis, this result is not expected, since *stack* – as a member of the *heap*-class – profiles all three participant roles (cf. (24)) and thus requires them to be overtly realized at the syntactic level. The fact that not all members of a narrowly-defined verb class exhibit the same profiling properties poses another problem for Goldberg’s constructional account because it does not predict the full range of acceptable argument realization patterns.

### 3.3 Transitivity and profiling properties

This section discusses the profiling properties of *load* and *pack*, which belong to the narrowly defined class of *load*-verbs. As discussed in section 2, the lexical



entry of *load* in (27a) serves to license sentences (27b) – (27d), while ruling out unacceptable sentences (27e) and (27f). (28) lists the lexical entry of *pack* which belongs to the same class as *load*, according to Pinker (1989).<sup>8</sup>

- (27) a. load < **loader, container, [loaded-theme]** > (Goldberg 1995: 178)  
 b. Joe loaded boxes onto the truck. (locative variant)  
 c. Joe loaded the truck with boxes. (*with*-variant)  
 d. Joe loaded the truck. (transitive location variant)  
 e. ?Joe loaded boxes. (transitive theme variant)  
 f. ?Joe loaded. (intransitive variant)
- (28) a. pack < **packer, container, [packed-theme]** >  
 b. Lila packed books into the box. (locative variant)  
 c. Lila packed the box with books. (*with*-variant)  
 d. Lila packed the box. (transitive location variant)  
 e. Lila packed books. (transitive theme variant)  
 f. Lila packed. (intransitive variant)

A comparison between (27) and (28) shows that *load* and *pack* do not exhibit similar profiling properties although they belong to the same verb class. Consider the lexical entry for *load*. In (27b) – (27d) it serves to license the locative, *with*-, and transitive location variants in combination with the caused-motion and the causative-plus-*with*-adjunct constructions. At the same time, the transitive theme and intransitive variants are typically judged unacceptable without any supporting contextual information. In contrast, the lexical entry of *pack* serves to license all five variants, including both the transitive and intransitive theme variants.

In addition, it is not clear how intransitive variants based on verbs participating in the locative alternation are licensed by lexical entries such as in (28a). That is, may both the container role and the packed-theme role be definite null complements? Then the question arises whether (28f) is licensed by the caused-motion construction or the causative-plus-*with*-adjunct constructions, each capable of being sensitive to definite null complements. Another possibility is an intransitive construction which maps only the packer role to the syntactic level. This option, however, would have to rely on non-profiled container and packed-theme roles.

Our discussion of the data has shown that grammatical constructions of the sort proposed by Goldberg are too powerful when it comes to licensing different argument realization patterns based on a single lexical entry of a verb. The following section outlines an alternative account of the locative alternation which puts less emphasis on the role of independently existing meaningful constructions.

## **4 Towards a usage-based lexical-constructional approach**

I would like to suggest that the problems discussed in the previous sections are not necessarily due to mechanisms inherent to the individual grammatical constructions. Instead, it seems as if they are caused by the structure of the lexical entries postulated by Goldberg.<sup>9</sup> On her view, verbs typically have single lexical entries which list their participant roles including both their profiling and null instantiation properties. Furthermore, participant roles of verbs belonging to the same narrowly defined class also share the same profiling properties, according to Goldberg. However, throughout our discussion of the data in section three, it has become clear that it is not always the case that verbs belonging to the same semantic class also exhibit the same profiling properties when it comes to the syntactic realization of their participant roles.

### **4.1 Polysemy and the structure of the lexicon**

In order to solve these problems, I propose to change the structure of lexical entries by systematically including more detailed semantic information about the different types of situations to which a verb may refer. On this view, a verb's meaning is not only represented in terms of a single minimal lexical entry. Instead, the multiple senses associated with a verb are described separately and are linked to each other in terms of polysemy networks of distinct, yet interrelated senses (cf., e.g., Iwata (1998), Fillmore & Atkins (2000), and Boas (2001a, 2002)). This approach has the advantage of not having to rely on a variety of independently existing Goldberg-type constructions in order to license multiple argument realization patterns in combination with a verb's single lexical entry.

For the description and analysis of a verb's multiple senses, I adopt the main ideas of a usage-based lexical-constructional approach as outlined by Boas (2000, 2001b). Central to this approach is the idea that in order to arrive at an adequate description and analysis of language, it is "necessary to not only analyze language from a point of view that emphasizes the structural relations and interdependencies between words in a sentence, but also to take into account how they are used in different contexts." (Boas 2000: 254) This means that it is not sufficient to investigate a linguistic phenomenon in isolation. Rather, the full range of forms and meanings associated with a linguistic unit must be considered.<sup>10</sup> In order to arrive at this goal, it is first necessary to conduct a thorough usage-based bottom-up description of the full range of argument realization patterns in which verbs participating in the locative alternation actually occur.<sup>11</sup> Based on this information, it then becomes possible to split a verb's individual argument realization patterns into distinct groups according to the different senses of the verb. This procedure results in a much more detailed lexicon in which verbs are associated with a number of conventionalized senses,

each of which forms its own mini-construction that is a pairing of a form with a meaning.<sup>12</sup>

The semantic information encoded by a mini-construction is described in terms of Frame Semantics (Fillmore 1982, 1985). The central idea behind Frame Semantics is that words have to be understood in context in order to arrive at a complete semantic description.

”This means that a semantic description of a word should include information about how speakers apply their lexical knowledge in interpreting and producing real discourse. Fillmore proposes that in order to understand the meaning of words in a language we must first have knowledge of the conceptual structures, or semantic frames that underlie the meanings of words. Semantic frames contain frame elements, i.e., descriptions of the frame’s participants in terms of situational roles.” (Boas 2001b: 4)

Based on these principles, each mini-construction representing a conventionalized sense of a word contains frame-semantic information about the frame to which it belongs. In addition, each mini-construction contains syntactic information about how the frame elements may be realized syntactically. The following section discusses the structure of a number of mini-constructions associated with verbs that participate in the *spray/load*-alternation.

#### 4.2 The structure of mini-constructions

To illustrate the relationship between multiple senses of a verb which participates in the *spray/load*-alternation, consider first the verb *load*. As has been pointed out in the literature, the *with*-variant is associated with some sort of “holistic” effect, whereas the locative variant is not (cf., e.g., Anderson 1971, Dowty 2000). This observation can be captured in frame-semantic terms by postulating that *load* has two distinct senses, each belonging to different semantic frames, namely the motion-filling and the motion-placing frames. The motion-filling frame describes situations in which containers are filled or areas are covered with things or substances, thereby achieving the “holistic” effect. The five frame elements (or semantic roles) are agent, theme, source, path, and goal.<sup>13</sup> The following simplified mini-construction represents the distinct “holistic” sense of *load*, as it occurs in the motion-filling frame.<sup>14</sup>

(31)	load <sub>m-f</sub> :	<b>AGENT</b>	<b>GOAL</b>	<b>THEME</b>
		NP.Ext	NP.Obj	PP_with.Comp

In (31), the subscript “m-f” indicates that the mini-construction represents the form-meaning pairing of the verb *load* in the motion-filling frame. The top line contains frame semantic information, whereas the bottom line lists information about how the frame elements are realized syntactically (part of speech as well

as grammatical function). This mini-construction serves to license three of the five frame elements of the motion-filling frame, namely agent, goal, and theme. Bold print indicates that a frame element is profiled and must therefore be realized at the syntactic level.<sup>15</sup> (31) serves to license the following sentences.

- (32) a. Joe loaded the truck with boxes.                      b. Joe loaded the truck.

(32a) is licensed by the mini-construction in (31) because it realizes the agent role of the motion-filling frame as the external NP *Joe*. Furthermore, the requirements that the goal and theme role be realized syntactically as an object NP and a PP complement headed by *with*, respectively, are fulfilled by (32a). (32b) is licensed in a similar way by (31), except for the fact that the theme role is not realized syntactically. However, this is in accordance with the profiling requirements stated in (31) which specify that the theme role is not profiled (the theme is in non-bold print). Next, we turn to the mini-construction encoding a different sense of *load* in (33).

- |      |                       |              |              |              |
|------|-----------------------|--------------|--------------|--------------|
| (33) | load <sub>m-p</sub> : | <b>AGENT</b> | <b>THEME</b> | <b>GOAL</b>  |
|      |                       | NP.Ext       | NP.Obj       | PP_onto.Comp |

The subscript “m-p” in (33) stands for the name of the motion-placing frame to which the mini-construction in (33) is linked. In other words, it indicates that this mini-construction represents a distinct sense of *load* that differs from that in (31). Although the motion-placing frame has a similar inventory of frame elements (namely agent, theme, source, path, and goal) as that of motion-filling, the semantic relations holding between these frame elements in the motion-placing frame differ from those in the motion-filling frame. The primary difference has to do with the status of the goal role which is profiled in (33), but not in (31). Note also that there is a different linear order of roles indicating the different non-holistic perspective taken of the event. The differences in linear order and profiling properties of the mini-construction in (33) become clear with the types of sentences licensed by it.

- (34) a. Joe loaded boxes onto the truck.                      c. \*Joe loaded.  
       b. ?Joe loaded boxes.

(34a) is licensed by the mini-construction in (33) in that all three frame elements (agent, theme, and goal) are syntactically realized according to the specifications in (33). In addition, (33) accounts for the unacceptability of (34b) and (34c) because it requires both the theme and goal elements to be realized syntactically (they are profiled). Having seen how two different mini-constructions linked to distinct semantic frames serve to describe the locative alternation exhibited by *load*, we now turn to a discussion of *pack*, a verb belonging to the

same narrowly defined class. Recall sentences (28b) – (28f), here repeated as (35a) – (35e).

- (35) a. Lila packed the books into the box.      d. Lila packed the books.  
 b. Lila packed the box with books.      e. Lila packed.  
 c. Lila packed the box.

- (36) pack<sub>m-f</sub>: **AGENT**      **GOAL**      THEME  
                  NP.Ext      NP.Obj      PP\_with.Comp

The mini-construction in (36) is similar to that in (31) in that the agent and goal roles are profiled whereas the theme role is not profiled. This means that (36) licenses both (35b) and (35c). Next, compare the mini-construction in (37), representing the motion-placing sense of *pack*, with its counterpart in (33) above.

- (37) pack<sub>m-p</sub>: **AGENT**      THEME      *GOAL*  
                  NP.Ext      NP.Obj      PP\_into/onto.Comp

The mini-construction representing the motion-placing sense of *pack* in (37) differs from (33) in that neither the goal nor the theme roles are profiled. This means that whereas *load* typically requires the theme and goal roles to be overtly realized when it occurs in the motion-placing frame, *pack* does not have these requirements. (37) therefore licenses examples (35a), (35d), and (35e). Another difference between (37) and (33) has to do with the status of the goal role, which is represented by italics in (37) but not in (33). Italics indicate that a frame element cannot occur by itself with the agent role but must occur with other roles, such as the theme role, for example. This requirement ensures that mini-constructions such as (37) do not license unattested examples such as \**Lila packed into the box*.

## 5 Conclusions and Outlook

This paper has outlined an alternative constructional account of the locative alternation that differs crucially from the analysis proposed by Goldberg (1995). Whereas Goldberg emphasizes the role of independently existing meaningful constructions in licensing the locative alternation, this paper has pointed out a number of problems with her account. A survey of a larger range of verbs participating in the locative alternation has shown that Goldberg's constructions produce unacceptable examples. Based on a closer investigation of how verbal and constructional semantics interact, it was suggested that these problems are due in part to the structure of lexical entries proposed by Goldberg. In particular,

it was shown that the notions of profiling and membership of a verb in a narrowly defined semantic class are problematic when it comes to determining the structure of a verb's lexical entry.

The alternative analysis proposed here shifts the burden of explanation from the abstract constructional level to a more concrete lexical-constructional level. On this view, each sense of a verb forms a mini-construction containing frame semantic as well as syntactic information. Each mini-construction is linked to a semantic frame, i.e. its meaning is understood with respect to the overall semantic frame. Our discussion of *load* and *pack* suggested that their argument distribution is best accounted for by postulating two mini-constructions for each verb, each linked to the motion-filling and motion-placing frames, respectively. Although the mini-constructions representing the distinct senses of the two verbs are linked to the same frame, it was shown that their profiling specifications for the individual frame elements (or semantic roles) differ from each other. Finally, it was proposed that this difference is responsible for the distinct argument realization patterns of *load* and *pack* in the locative alternation.

The lexical-constructional analysis presented in this paper has the advantage of being more precise than Goldberg's theory in accounting for the different argument realization patterns of verbs participating in the locative alternation. By including more elaborate information in a verb's lexical entry it thus becomes possible to capture the apparent idiosyncrasies exhibited by verbs that are closely related in meaning. In order to arrive at a more global account of the locative alternation, further research remains to be done on a larger number of verbs. Another open question is concerned with the status of grammatical constructions in general. In other words, it is not yet entirely clear as to how much idiosyncratic information needs to be stored in the lexicon and how powerful grammatical constructions really are in licensing other argument structure alternations.

## 6 Notes

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<sup>2</sup>Goldberg's (1995) constructional approach is fundamentally different from syntactically-oriented analyses employing lexical rules (cf., e.g., Pinker 1989 and Aranovich & Runner 2001). Whereas lexical rule accounts typically assume that rules derive extended lexical entries (and thus alternate argument realization patterns) from a "basic" lexical entry, Goldberg explains argument structure alternations in terms of interactions of verbal and constructional semantics. On this view, different argument structures are due to different constructions (form-meaning pairings) interacting with a verb's semantics.

<sup>3</sup> See Goldberg (1995: 3-5) for a more detailed discussion of the theoretical status of grammatical constructions.

<sup>4</sup>“Lexically profiled roles are entities in the frame semantics associated with the verb that are obligatorily accessed and function as focal points within the scene, achieving a special degree of prominence. (...) Profiling is lexically determined and highly conventionalized – it cannot be altered by context.” (Goldberg 1995: 44)

<sup>5</sup>The fusion of constructional and verbal semantics is regulated by two general principles, namely the Semantic Coherence Principle and The Correspondence Principle (Goldberg 1995: 50).

<sup>6</sup>“*Heap*-class: vertical arrangement on a horizontal surface: *heap, pile, stack ... (...)* *Cram*-class: mass is forced into a container against the limits of its capacity: *cram, pack, crowd, jam, stuff ...*” (Goldberg 1995: 176)

<sup>7</sup>The fact that the loaded-theme role may be realized as a possible null complement of *load* is irrelevant here.

<sup>8</sup>Note that (27) is acceptable given the proper contextual background information.

<sup>9</sup>Nemoto (1999) makes the same point with respect to ditransitive constructions.

<sup>10</sup>The types of information may be syntactic, semantic, pragmatic, morphological, and phonological, among others.

<sup>11</sup>For examples of such an approach to linguistic description, see Salkoff (1983), Guillet & Leclere (1992), and Boas (2000).

<sup>12</sup>On this approach, each sense of a word is encoded in terms of a mini-construction, containing both frame-semantic as well as syntactic information. For an analysis implementing these principles, see Boas (2000) on resultative constructions in English and German and Boas (2001b) on caused-motion constructions.

<sup>13</sup>See Johnson et al. (2001) for a more detailed discussion of the organization of the motion-filling and motion-placing frames.

<sup>14</sup>Verbs that also have senses belonging to this frame include *pack, stuff, and wrap*, among others.

<sup>15</sup>Note that the specifications of the mini-constructions in this paper represent a first approximation of their structure as they pertain to the locative alternation. Due to space limitations, other types of alternations or grammatical constructions are not considered here. As such, these specifications must be regarded as default specifications that are subject to override by productive grammatical constructions such as the passive construction, for example.

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