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Patient arguments of causative verbs can be omitted: the role of information structure in argument distribution

Adele E. Goldberg *

Department of Linguistics, University of Illinois, 4088 Foreign Language Building, 707 South Mathews Avenue, MC 168, Urbana, IL 61801, USA

Abstract

This paper offers an examination of the distributional range of causative verbs. Contra many claims in the literature that these verbs have highly circumscribed distributions, we demonstrate that they readily appear in a wide variety of argument structure frames. The appearance of causative verbs with omitted patient arguments is analyzed in particular detail and an account is offered in which properties of information structure play a critical role. Constructional influences and lexical semantic factors are shown to be relevant as well, both in the case of omitted arguments and in licensing resultative and path phrases. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Verbal distribution

How does the inherent meaning of a verb relate to its distribution? This question has remained at the forefront of linguistic theories since *Aspects* was published (Chomsky, 1965). In most early accounts, and many current accounts, the meaning of a verb has been assumed to uniquely predict its argument structure patterns, allowing for perhaps one or two regular "alternations" via lexical rule or transformation.

Recently, there has been a growing recognition that verbs are typically able to appear in a much wider variety of argument structure frames (hereafter, *constructions*), while retaining their same basic or "core" meaning (Jackendoff, 1990, 1997; Goldberg, 1992; Grimshaw, 1993) than was previously recognized. Goldberg (1995, p. 11), for example, cites eight different uses of kick, a verb that is often cited as a prototypical example of a simple transitive verb:

*Tel.: +1-217-333-9045; fax: +1-217-333-3466.
E-mail address: agoldbrg@uiuc.edu (A.E. Goldberg).

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		Example	Construction
1.	a.	Pat kicked the wall.	Transitive
	b.	Pat kicked the football into the stadium.	Caused Motion
	c.	Pat kicked Bob black and blue.	Resultative
	d.	Pat kicked his foot against the chair.	"Fake" Object Resultative
	e.	Pat kicked Bob the football.	Ditransitive
	f.	Pat kicked at the football.	Conative
	g.	The horse kicks.	Intransitive
	h.	Pat kicked his way out of the operating room.	*way* Construction

In each case, *kick* entails a quick forceful motion of the leg. Rappaport Hovav et al. (1998) cite six uses of *run*; in each case *run* entails a self-initiated movement in a particular manner:

		Example	Construction
2.	a.	Pat ran.	Intransitive
	b.	Pat ran to the beach.	Intransitive Motion
	c.	Pat ran herself ragged.	"Fake" Reflexive Resultative
	d.	Pat ran her shoes to shreds.	"Fake" Object Resultative
	e.	Pat ran clear of the falling rocks.	Intransitive Resultative
	f.	The coach ran the athletes around the track.	Caused Motion

It has frequently been claimed that such varied distribution is only characteristic of a subset of verbs, for example only activity verbs. Causative verbs, in particular, have been claimed to have a much more restricted distribution.[1] It has been claimed that the patient argument of causative verbs must always be expressed (Browne, 1971; Grimshaw and Vikner, 1993; Brisson, 1994; Rappaport Hovav et al., 1998); that causative verbs cannot appear with "fake" or "unsubcategorized" objects (Rappaport et al., 1998);[2] and that causative verbs cannot appear with path or resultative phrases (Dowty, 1979; Rappaport et al., 1998).

[1] Defining what should count as a causative verb is sometimes tricky. Is *dry-clean* a causative verb despite the fact that one can say *I dry-cleaned this shirt, but it's not really clean*? Arguably, while the shirt is not necessarily caused to become clean, it is caused to become changed in some way. But for present purposes, I try to restrict myself to clear cut cases: verbs such as *kill*, *break*, *chop*, etc. See Section 6.1. for a discussion of how the generalizations apply to a broader range of verbs.

[2] "Fake" objects are so-called because they are NPs in direct object position which cannot appear in corresponding simple transitives. For example *himself* in (a) is said to be a fake object because (b) is unacceptable (Simpson, 1983):

a. He laughed himself silly.

b. *He laughed himself.

In Sections 2–6, we examine the claim that causatives must have a subcategorised object and show that it is not always the case. Lexical semantics and the properties of constructions interact with discourse properties to yield a class of exceptions to this claim which is open ended. In Sections 7 and 8, we consider the claim that causative verbs cannot appear with path or resultative phrases and demonstrate that under certain circumstances, they in fact can. The evidence leads to the conclusion that the actual distribution of causative verbs cannot be determined by simple, across-the board generalizations. Instead their distribution can only be predicted by taking discourse factors, rich lexical meaning and constructional factors into account.

2. Patient arguments and omissibility

Causative verbs entail that there is a change of state in their patient argument, which is normally expressed by their object. Several researchers have argued or assumed that causative verbs obligatorily express the argument that undergoes the change of state in all contexts (Browne, 1971; Grimshaw and Vikner, 1993; Brisson, 1994; van Hout, 1996, pp. 5–7; Rappaport Hovav et al., 1998). Initial support for this generalization might be drawn from the following examples:

3. a. *The tiger killed.
   b. *Chris broke.

Clearly the generalization must be relativized to English, since many languages do allow the patient or theme argument to be unexpressed when it represents topical information. This is true for example in Chinese, Japanese and Korean (Li and Thompson, 1981; Huang, 1984). For example, the patient arguments can be omitted in Korean in the following conversation:

4. A: <I ran across a big fat rat in the kitchen this morning>
   B: kulayse, cwuki-ess-e?
      So, kill-PAST-SententialEnding?
      "So, did [you] kill [it]?"

5. A: Ani, tomanka-key naypelie twu-ess-e
      No, run away-comp leave let-PAST-SE
      "No, [I] let [it] run away" (Woo-hyoung Nahm, pers. comm., 16 February 1999)

In what follows we concentrate on the extent to which the proposed constraint holds in English, but we return to some cross-linguistic observations in Section 4.

2.1. Object predictability and nonspecificity

Pace claims in the literature to the contrary, causative verbs often do actually allow patient arguments to be omitted, particularly when they are indefinite and nonspecific. The following examples illustrate this phenomenon:[3]

6. a. The chef-in-training chopped and diced all afternoon.
   b. Tigers only kill at night.
   c. The singer always aimed to dazzle/please/disappoint/impress/charm
   d. Pat gave and gave, but Chris just took and took.
   e. These revolutionary new brooms sweep cleaner than ever
      (Aarts, 1995, p. 85)
   f. The sewing instructor always cut in straight lines.

Clearly each of the examples in (6a–f) retains its change of state meaning. Example (6a) designates a scene in which something was chopped and diced, thus undergoing a change of state. Example (6b) designates a scene in which tigers cause some unspecified animals to die; (6c) involves various psychological causative predicates; in (6d), Pat causes something to be given to Chris; (6e) involves an overt result phrase, and in (6f) some unspecified fabric is caused to be cut.

All of the unexpressed patient arguments receive indefinite, nonspecific interpretations: neither the speaker nor the hearer need to be able to identify the particular foodstuffs that were chopped in (6a). Similarly neither interlocutor need to be able to identify the particular animals which the tiger kills in (6b), and so on.

The patient arguments in the examples above are each extremely general and predictable from the verbal meaning and the sentence context. As many have observed, there is a semantic requirement that the speaker must expect the hearer to be able to recover any argument that is omitted (e.g. Rice, 1988; Fellbaum and Kegl, 1989; Resnik, 1993; Cote, 1996; Lambrecht and Lemoine, 1998).

However, this is not the only requirement. In the following section, we will see that a further factor is required to license object omission, in addition to nonspecificity and predictability.

2.2. A first pass at a constraint on the action

The objects in (7) are obligatorily expressed even if they receive an indefinite, nonspecific interpretation [the infelicity of omission is indicated by the "*( )" notation]:

[3] In an indepth survey of various types of omitted argument, Cote (1996, pp. 130ff) classifies omitted arguments of this type as "Arbitrary Null Objects," but suggests that the class is highly lexically constrained to include *warn*, *advise*, *amuse* and closely related verbs with animate patient arguments. She further observes that the generic interpretation is often required. We see here that a great variety of verbs can appear with this type of omitted argument, regardless of the animacy of the patient argument. Genericity does seem to be a sufficient although not necessary interpretation for the action as discussed below.

These cases would be considered a subtype of "Indefinite Null Complementation" according to Fillmore (1986), and a subtype of "Lexically Conditioned Intransitivity" according to Fellbaum and Kegl (1989).

7. a. The tiger killed *(some animal).
   b. I heard Pat cut *(something).

By contrast, the acceptable examples in (6a–f) involve a further relevant factor: they designate actions that are iterative (6a,d) or actions that are generic (6b,c,e,f) (see also Resnik, 1993, p. 78). In the case of iterative actions, the action designated by the verb is interpreted as repeated more than once. In the case of the generic statements in (6b,c,e,f), the action is also likely (if not by logical necessity) to be repeated more than once, as the statement is understood to be true generally. It is also possible that the iterative or generic context be embedded in a negative context in which no repetition is entailed, but the possibility of repetition is evoked:

6′. a. The chef-in-training didn't chop or dice all afternoon.
   b. Tigers never kill at night.
   c. The singer never aimed to dazzle/please/disappoint/impress/charm.

It may be suggested that atelicity could supply the appropriate constraint. Repeated actions are often construed as *atelic* or temporally unbounded events. A simple test for atelicity is that atelic events are compatible with durative temporal phrases such as *for an hour* and incompatible with bounded temporal phrases such as *in an hour*.[4] Most of the iterative and generic contexts in (6a–f), repeated in (8), pass this test of atelicity [with the exception of (8c), which allows both durative or bounded temporal phrases]:[5]

8. a. The chef-in-training chopped and diced for hours/*in an hour.
   b. Tigers only kill at night for a period of their lives/*in a period of their lives.
   c. The singer always aimed to dazzle for hours /in an instant.
   d. Pat gave and gave, but he just took and took for years/*in a year.
   e. These revolutionary new brooms sweep cleaner for years/*in a year
   f. Always cut in straight lines for the first few years you sew/*in the first few years.

Many researchers have observed that atelic contexts are more likely to be intransitive than telic contexts (Mittwoch, 1971; Hopper and Thompson 1980; Dixon, 1991, p. 288; Aarts, 1995, p. 87; van Hout, 1996, pp. 166–187; Rappaport Hovav et al., 1998). However, atelicity per se is not necessary for object omission. Notice example (9) is telic, and yet the example is fully acceptable:

9. Scarface killed again.

[4] See Jackendoff (1996) and Michaelis (2000), for certain caveats on the use of this test.

[5] Examples such as those in (8) demonstrate that, contra occasional claims made in the literature, causative verbs do not necessarily express telic events (see also Van Valin and LaPolla 1997, p. 97).

The use of *again* in (9) indicates that Scarface has killed before. If the action is construed as an isolated occurrence, the sentence is unacceptable:

10. ?? Pam killed yesterday.[6]

Conversely, the following examples with verbs in the progressive tense designate atelic but singular actions and require the patient argument to be expressed:

11. a. Scarface was killing *(someone) when he got shot.
    b. As she was pleasing *(an audience), she thought about her upcoming audition.

We can organize the examples discussed in this section in the following table, with unacceptability indicated by "*":

Table 1
Acceptability of sentences with omitted patient arguments

	Atelic	Telic
Repetition of action is entailed or evoked	6a–f	9
Non-repeated	*11a,b	*7a,b, *10

It is clear from Table 1 that the repetition of the action is more relevant than the atelicity of the event. We will broaden this constraint considerably in Section 4, but for now it should be borne in mind that definite patient arguments cannot generally be omitted, even if the action is construed as repeated, as in the following generic contexts:

12. a. When it comes to tasty ducks, tigers love to kill *(them).
    b. They always buy expensive things and then give *(them) away.

To summarize, a descriptive generalization of all of the acceptable examples of omitted objects with causative verbs seen so far involves two separate factors: (1) the patient argument is predictable, indefinite and nonspecific, and (2) the action is construed as repeated. Further evidence for the relevance of these factors is provided in the following section. These factors are put into the context of an explanation in Section 4, where we will see that the real constraint is better stated in terms of discourse prominence. The analysis is extended to address related phenomena in Sections 5 and 6.

[6] As Nik Gisborne points out, *Pam killed for the first time yesterday*, is fine. I believe this is because the possibility of multiple actions is evoked by *first*. Notice #*Pam* killed early in the morning yesterday requires a special context in which Pam is known to have killed before.

3. Omission of the patient argument in favor of a "fake" object

Notice that the following examples are unacceptable with direct objects that do not designate the normal patient arguments of the verbs. For example, (13a) is intended to mean that Chris murdered someone other than Pat, thereby driving Pat crazy.

13. a. *Chris murdered Pat crazy. (to mean Chris murdered other people and it drove Pat crazy)
    b. *Sam bludgeoned himself silly. (to mean Sam bludgeoned others until he became silly.)
    c. *She smashed herself into a jail cell. (to mean she smashed things which resulted in her being incarcerated.)

In previous accounts (Browne, 1971; Grimshaw and Vikner, 1993; Brisson, 1994; Rappaport Hovav and Levin, 1998), the examples in (13a–c) could have been accounted for by the general constraint against omitting patient arguments of causative verbs that was just discussed; however, we have just seen that patient arguments are not in fact always expressed. Before attempting to account for the examples in (13), it is worth taking a closer look at whether "fake" objects ever appear with causative verbs. By a "fake object" I mean an object that is not normally associated with an argument of the verb (Simpson, 1983).

One kind of fake object involves the 'way' construction. Each of the following examples, attested in the Oxford University Press corpus, involves a change of state verb with a possessive way phrase substituting for the normal patient argument:

14. a. "The rebels raped, pillaged and murdered their way through villages of the Krahn tribe.".
    b. "A warrior in 16th century Japan, bludgeoning his way to power beneath a cherry tree ..."
    c. "..fans smashed their way into the Utrecht stadium..."

Notice that the verbs in (14) are still interpreted as causative verbs: people cannot "murder their way through a village," for example, without causing people to die. But in each case, the omitted patient argument is interpreted nonspecifically: nonspecific people are murdered or bludgeoned in (14a,b) and nonspecific things are smashed in (14c).

How do we account for the difference between the examples in (13) and those in (14)? As a rule, the 'way' construction is used to express ongoing actions that enable motion despite obstacles (Jackendoff, 1990; Goldberg, 1996). Accordingly, the actions designated by the verbs in (14) have to be interpreted as occurring repeatedly. Since the omitted patient arguments in (14a–c) also receive non-specific interpretations, we see that the *way* construction can serve to provide the relevant context for argument omission. If we were able to construe the actions in (13a–c) as repeated events, the sentences would also be acceptable.

As we also saw in the previous section, it is not atelicity, but repetition, that licenses the omission of patient arguments. Notice the minimally distinct examples in (15) are construed as involving repeated actions, but are not atelic. The events are temporally bounded or telic, and yet the sentences are still grammatical:

15. a. The convict murdered his way out of the country (in a few days/??for a few days).
    b. A warrior in 16th century Japan bludgeoned his way to the crown (in a year/??for a year).
    c. The unruly fan smashed his way out of the Utrecht stadium (in an hour/??for an hour).

4. Discourse prominence

In this section, we generalize the descriptive observations from previous sections to offer an explanatory account of when patient arguments of causative verbs may be omitted. The account relies on a notion of "discourse prominence" that subsumes both topic and focus. In English, discourse-prominent arguments, whether prominent by virtue of being topical or focal, generally need to be expressed. Normally, the patient argument of a causative verb is quite prominent in the discourse; one typically does not assert that a participant changes state unless one wishes to discuss or draw attention to that participant. Therefore patient arguments of causative verbs typically need to be expressed. Yet the typical situation does not always hold.

In certain contexts, it is possible to find patient arguments of causative verbs that have very low discourse prominence and therefore need not be expressed. The factors outlined above combine to insure that the patient argument receives little prominence in the discourse: the patient argument is neither focal nor topical. Moreover, the action must be emphasized, thereby further shifting discourse prominence away from the patient argument. The notions of "topic," "focus," and "emphasis," and their relevance to patient omission are clarified below in Sections 4.1–5.

4.1. The patient as non-focus

Focal arguments serve to convey the new information in a clause. More precisely, "the focus relation relates the pragmatically non-recoverable to the recoverable component of a proposition and thereby creates a new state of information in the mind of the addressee" (Lambrecht, 1944, p. 218). Cross-linguistically, focal elements must be expressed. This follows from the fact that they are not predictable: they must be expressed in order to be identified.

As we have seen, the omitted patient arguments in examples (6a–f) above are all highly predictable given the predicates and the sentence context. They are therefore not candidates for focal status. Further evidence that the relevant patient arguments

are not potential foci comes from the fact that they cannot bear focal accent.[7] Consider the following variants of 6(a–f) with patient arguments expressed and accented (infelicity indicated by "#"):

16. a. #The chef-in-training chopped THINGS and diced THINGS all afternoon.
    b. #Tigers only kill BEINGS at night.
    c. #The singer always aimed to dazzle PEOPLE.
    d. #Pat gave FAVORS and gave FAVORS, but Chris just took FAVORS and took FAVORS.
    e. #These revolutionary new brooms sweep SURFACES cleaner than ever.
    f. #Always cut THINGS in straight lines.

In a context in which the patient arguments in (16) are used contrastively, they cease to be predictable and therefore can receive the focal accent as in (17a) (K. Lambrecht, pers. comm., 4 January 1999). As expected, the patient argument cannot be omitted in this context (17b):

17. a. Dr. Doolittle aimed to dazzle animals; he didn't care if he dazzled PEOPLE.
    b. Dr. Doolittle aimed to dazzle animals; he didn't care if he dazzled *(people).

4.2. The patient as non-topical

A sentence topic can be defined as a "matter of [already established] current interest which a statement is about and with respect to which a proposition is to be interpreted as relevant" (Lambrecht, 1994, p. 119). It follows from this definition that topicality should be recognized as a matter of degree. Even so, the omitted patient arguments can be seen to be non-topical. Topical elements are most often definite, so the indefinite, non-specific nature of the patient arguments makes them ill-suited for topical status. The possibility of anaphoric reference is another reasonable measure of topicality, at least for entities, since one is likely to wish to continue discussing topical entities. As expected, the omitted arguments under discussion do not provide discourse antecedents:

18. The chef-in-training chopped and diced all day. *They were put into a large salad.

19. Tigers only kill at night. *They are easily caught at that time.

[7] As has been demonstrated clearly by Ladd (1980) and Lambrecht and Michaelis (1998), accent does in some circumstances fall on non-focal elements (by default accent placement). What is important here is that if an argument may not bear an accent, it cannot be focal. Put differently, focal elements may bear sentence accent.

Conversely, topical elements can be shown not to allow the type of object omission discussed here (Fillmore, 1986):

20. What happened to that carrot?
I chopped *(it).

21. What happened to that gazelle?
The tiger killed *(it).

4.3. Lexical semantic influences

We have discussed two factors that contribute to discourse prominence: non-predictability and relevance. Clearly the lexical semantics of the verb contributes to these factors in a direct way. Therefore, the present account predicts that certain causative verbs will allow their patient arguments to be omitted more easily than others. That is, some verbs more easily allow a construal in which the patient argument is both predictable (non-focal) and not highly relevant to what is being conveyed (non-topical) than do other verbs. A comparison of two different verbs should illustrate the point.

The verb *recycle* designates an action which changes certain kinds of garbage into reusable materials; we know it is an ecologically sound practice, we know cities often sponsor recycling projects and so on. The patient argument, the garbage, is in many contexts less relevant in that we often do not care what particular items are recycled. The causative verb *break*, on the other hand, tells us very little about what happened. Bubbles, TVs, breadsticks, and hearts break in very different ways and with very different consequences. The patient argument supplies much of the relevant information. Thus it is hard to imagine a context in which there is a very strong discourse emphasis on the action of breaking and relatively little on what was broken.[8] Accordingly we find the expected contrast between (23a) and (23b):

22. a. That man always recycles.
b. *That man always breaks.

This contrast indicates that the object taking properties of causative verbs cannot be predicted in broad strokes. Rich lexical meaning must be taken into account (see also Resnik, 1993; Fellbaum and Kegl, 1989).

4.4. Emphasized action

We saw in Section 2.2 that acceptable examples with omitted objects often require that the action denoted by the verb be understood to apply repeatedly: either iteratively or generically. Actions which are interpreted as repeated are emphasized. This emphasis can be indicated by a repetition of the verb as in *gave and gave* or *took and*

[8] See example (28) for just such a context.

took (cf. example 6d). Talmy (1977) discusses a relevant variation in construal, which involves viewing an action as repeated or having greater durational extent. He terms this *magnification* or the *close-up* view of the action (p. 615). His choice of terms is telling in that there is an implication of increased emphasis on the action itself.

Rice (1988) suggests that in many contexts which allow omitted objects generally, "the pragmatic focus is on the activity itself" (p. 206). It might be tempting to adopt this idea, that the action necessarily takes on the role of focus, since by hypothesis, the patient argument is not focal, and every sentence requires at least one focus: every utterance must contain some assertion or new information (Lambrecht, 1994, p. 206). This would give us an explanation for the increased emphasis on the action: the action must take on the role of focus because the patient is non-focal.

However, there are two reasons to think that the nature of the increased emphasis on the action is not captured by the notion of focus. First, the general requirement that there must be a focus in every utterance should be satisfiable by an adjunct as easily as by the predicate. And yet we see in examples (23a,b) that the presence of a focal adjunct is not sufficient to obviate the requirement that the action must be repeated:

23. a. They claimed that Alice killed ??(someone) YESTERDAY.
    b. She heard that the singer impressed *(an audience) last NIGHT.

That is, if the relevant constraint on patient omission were that some alternative focus were required, and not that the action in particular must be emphasized, we would expect the objects in (23a,b) to omissible; the adjuncts should satisfy the requirement for a focal element.

Moreover, "focus" as used here does not accurately describe the requirement that the action must be emphasized. Recall that the focus relation is defined in terms of what is unpredictable or asserted (as opposed to presupposed) in a clause. The actions are not necessarily unpredictable in the relevant way. For example, the patient argument of *kill* is omitted in (24b), but neither use of kill is focal [cf. also (25a)]:

24. A: When do these animals hunt?
    B: Beavers kill during the day, but tigers only kill at night.

It seems a different dimension of discourse prominence is required; the action is somehow emphasized in the discourse, but not necessarily by virtue of being focal. The ways in which an action can be emphasized are varied; one way, via repetition of the action, has already been discussed, but other ways of emphasizing the action are also possible. Consider the following acceptable examples:

25. a. He was always opposed to the idea of murder, but in the middle of battlefield, he had no trouble killing.
    b. She picked up her carving knife and began to chop.
    c. Why would they give this creep a light prison term!? He murdered![9]

[9] I thank Christiane Fellbaum and Knud Lambrecht for these examples.

In none of the examples (25a–c) is the action construed as repeated. However, in each case, the action is emphasized in some other way. In (25a), as in (24b), killing is emphasized in that it is the discourse topic of the conversation. Example (25b) evokes clearly Talmy's notion of a "close-up" view of the action; in (25c), murdering is emphasized by the speaker's strong affective stance toward the action. Another way of emphasizing an action is by explicitly contrasting it with another action. We see this licenses object omission as in examples (26a,b):

26. a. "She stole but she could not rob." (Beatles song: She Came in through the Bathroom Window)
    b. How could Griselda get a lighter prison term than Zard? He burglarized, but she murdered.

We can summarize the constraints on patient omission discussed so far in terms of a principle of Omission under Low Discourse Prominence:

> I. Omission of the patient argument is possible when the patient argument is construed to be deemphasized in the discourse vis a vis the action. That is, omission is possible when the patient argument is not topical (or focal) in the discourse, and the action is particularly emphasized (via repetition, strong affective stance, discourse topicality, contrastive focus, etc.).

The phenomena of patient omission can be viewed as an example of what Talmy (1996) describes as the "windowing of attention." Talmy states, "languages can place a portion of a coherent referent situation into the foreground of attention by the explicit mention of that portion, while placing the remainder of the situation into the background of attention by omitting mention of it" (p. 246). That is, an object argument is omissible when it is not prominent in the discourse, and when there is additionally reason to shift attention toward the action, and therefore away from the object itself. The ways in which actions can be emphasized are quite varied; *emphasis* is intended as a cover term for the various types of increased prominence that have been discussed.

As noted at the outset of Section 2, languages differ in their grammatical possibilities for argument omission. No languages allow focal elements to be omitted, because focal elements are by definition not predictable from context. In many languages, the primary topic, which is the subject, if topical, can be omitted; these are the so-called "pro-drop" languages (e.g. Spanish). Other languages such as Japanese and Korean allow non-subject, topical arguments to be omitted as well. In English, with a few lexical exceptions (cf. Fillmore, 1986), all topical arguments including the subject must be expressed. However if the action is particularly emphasized (by repetition, contrast, etc.), it is possible to omit arguments that are both predictable (non-focal) and non-relevant (non-topical).[10]

[10] The question might be raised as to why cross-linguistically, the primary topic is more likely to be omitted than other topical elements, given that English generally requires omitted arguments to be *non*-topical. There is in fact motivation for omitting expressions at both ends of the topicality continuum. Arguments that are already highly topical do not require expression because they are already maximally *active* in the sense of Chafe (1994). Arguments which are not at all topical because they are irrelevant also do not require expression because there is no reason to make them active. *(footnote continued on next page).*

5. Omission of definite patients

In an apparent paradox, in certain highly restricted contexts, the omitted patient argument may appear to receive a very highly topical interpretation.[11] For example, the responses in (27B) and (C) are possible in the context in (27A):

27. A: Let's get all of these ugly dishes out of here before your date arrives.
B: OK, you break and I'll sweep.[12]
C: You wash, I'll dry. (Rice, 1988; Resnik, 1993, p. 78; Cote, 1996)[13]

Note that a narrow emphasis on the paired actions is necessary to license this type of omission. It is not generally possible to use a single verb in the same context:

28: Ok, you break *(them).

Cote (1996) suggests that such omitted arguments must be very recently mentioned or very salient in the discourse. However, definite patient omission seems in fact to be more natural if the referent of the omitted argument is present and salient in the *non-linguistic* context:

29. A: Do you know about that pile of empty cans down by the beach? Do you think we can jam them all into the container that was down there?
B: #Sure, you crush and I'll stuff.

29′. A′: Do you think we can jam all of these empty cans into this container?
B′: Sure, you crush and I'll stuff.

[10](*continued*) Lambrecht and Michaelis (1998) observe a parallel phenomenon involving sentence accent. They note that there are two reasons why a referential expression may not accept accent. The first is that the expression is topical, as in *She LOVES him*, where *him* is deaccented because he is already topical. The second reason is that the expression is indefinite as in *She was TALKING to someone*. Neither of these cases requires the speaker or hearer to search for and locate a referent. This is not necessary in the first case because the referent is already fully active; in the second case, this is not necessary because the referent does not really matter.

On the other hand, if languages such as Spanish should not be considered pro-drop languages because the subject is marked by agreement on the verb, then it would seem that cross-linguistically, less topical arguments are more easily omitted than topical arguments.

[11] See Lambrecht and Lemoine (1998) for discussion of the more free appearance of this type of null argument in spoken French.

[12] I thank Gregory Ward for this example.

[13] *Wash* and *dry* as used here might be argued not to be causative verbs since they do not strictly entail that the dishes are necessarily clean or dry. *Break* in (27b), however, is uncontroversially causative. Fellbaum and Kegl (1989) also observe examples like these are possible with verbs that are normally obligatorily transitive; they refer to this class of object omission as *discourse conditioned intransitives*, although they are not specific about what discourse conditions are required to license this type of omission.

This is an unusual preference. The more typical constraint is that the antecedent must be linguistically evoked (as is the case in gapping, stripping, VP-ellipsis and identifier "so" anaphora), or that it can freely either be linguistically or situationally evoked (Hankamer and Sag, 1984; Keller and Ward, 1999). I know of no previously discussed case in which it is preferable for the antecedent's referent to be present in the non-linguistic context. We might raise the question as to whether the omitted argument is really in fact topical in the discourse, given this dispreference for overt linguistic antecedent. In fact, when the argument is made clearly topical, this type of object omission is not acceptable:

30. A: What should we do with those cans?
B: #You crush and I'll stuff.

At the same time, the omitted arguments do seem to receive a definite interpretation. Both the speaker and hearer have a definite referent in mind for the omitted arguments. Based on English alone, it is hard to tell for sure what is going on in these cases. However, relevant data comes from Hungarian, as related to me by Zsuzsanna Nagy (pers. comm., 19 June 1999). Hungarian distinguishes definite arguments from indefinite arguments by a verbal suffix:

31. Péter néz-i a gazella-t
Peter-NOM watches-def the gazelle
"Peter watches the gazelle."

32. Péter néz egy gazellá-t
Peter-NOM watches (indef) a gazelle-ACC
"Peter watches a gazelle."

The indefinite suffix is also used for basically intransitive verbs such as "melt" or "dance." Object omission is possible whenever the omitted argument is definite and topical, as the following example demonstrates:

33. Meg hív-t-am vascorá-ra
Prtcl invite-PAST-1sg(def)[] dinner-to
[I saw Peter, so] "I invited [him] for dinner."

Definite object omission is possible only if the argument is topical. If it is a contrastive focus, the omission is not acceptable:

33′. ö-t/*[] hív-t-am meg vacsorá-ra.
Him-ACC/[] invite-PAST-1sg(def) prtcl dinner-to.
[I saw Peter, so] *"I invited [HIM] for dinner" [and not John].

Indefinite patient omission appears to be possible in the same contexts as in English. For example,

34. A tigris csak éjszaka öl/*öl-I
A tiger only at night kill-s(indef)/*def
"The tiger kills only at night."

Interestingly, in the *crush-and-stuff* context just discussed, Nagy observes that Hungarian only allows the patient arguments to be omitted if the otherwise transitive verbs appear in the "indefinite" form:

35. Persze, én tör-ök, te rak-odsz
Sure, I-NOM break-1sg(indef) you-NOM put-2sg(indef)
"Sure, I crush, you stuff."

36. *Persze, én tör-öm, te rak-od
Sure, I-NOM break-1sg-def you-NOM put-2sg-def
"Sure, I crush [them], you stuff [them]."

The morphology indicates that the narrow focus on the action, which emphasizes the action to a high degree, creates a situation in which the omitted definite arguments are not construed as topical. These cases illustrate the way in which emphasizing the action is inversely related to the prominence of the patient argument: when the action is a narrow contrastive focus, which clearly insures a high degree of emphasis, the patient argument receives a correspondingly low degree of prominence in the discourse: even definite arguments are not construed as topical. Again, this suggests the relevance of "windowing of attention." We saw in the previous section that attention can be shifted away from indefinite arguments in favor of the action; we see in this section that attention can also be shifted away from definite arguments in favor of the action, if the action is sufficiently emphasized. Thus these cases instantiate further examples of Omission under Low Discourse Prominence, rather than being counterexamples to the principle.

6. Related classes of examples

The principle of Omission under Low Discourse Prominence was formulated on the basis of patient arguments of causative verbs. However, the same generalization can illuminate conditions of indefinite object omission more generally.

6.1. Lexically conditioned indefinite object omission

The question arises as to how the present account extends to cases of "lexically conditioned intransitivity" involving non-causative verbs such as *drink*, *smoke*, *sing*, *bake*, *read*, *eat* (Fellbaum and Kegl, 1989; see also Fillmore, 1986). In the case of these verbs, the omitted patient or theme argument is non-topical and non-focal, but the constraint that the action must be emphasized is relaxed. It is possible to say for example, *Pat drank today*, if only a single instance of drinking occurred and there is

no other type of contextual emphasis.[14] At the same time, if we compare (37a,b), there is some intuition that the action is more emphasized in (37a) than in (37b), although I will not try to defend that intuition precisely.

37 a. Pat read in the car.
b. Pat read a book in the car.

Interestingly, the same set of verbs frequently occurs in generic contexts with a habitual interpretation: *Pat drinks*; *Pat smokes*; *Chris sings*; *Sam bakes*. It seems likely that the frequent appearance of this usage, which is licensed by the Omission under Low Discourse Prominence principle, led to the grammaticalization of a lexical option for these verbs, whereby they could appear intransitively in less constrained contexts. Corpus and historical work, to determine the frequencies of usage and the historical evolution, would be required to determine whether this hypothesis is correct.

6.2. Characteristic property examples

The factors outlined as relevant to indefinite argument omission can help motivate the "characteristic property" examples noted by Fellbaum and Kegl (1989) and Levin (1993, p. 39). Levin cites example (38), and observes that certain other verbs including *bite*, *itch*, *scratch*, *sting*, can appear intransitively, with the interpretation that the action is characteristic of the agent.

38. That dog bites.

Bite, *scratch* and *sting* are arguably causative verbs, so these cases provide further evidence that patient arguments of causative verbs need not always be expressed. Interestingly, example (38) involves a generic context and a general and non-specific patient argument; therefore this data is licensed directly by the Omission under Low Discourse Prominence principle. The generic context naturally leads to an interpretation in which the action is characteristic of the subject argument, but such an interpretation is not required to license these particular examples. Note that the following variants of (38) do not involve characteristic actions:

39. a. That dog has been known to occasionally bite, but he is generally very loving.
b. The frightened toddler scratched and bit until his mother arrived.

[14] It is sometimes claimed that this use of *drink* necessarily implies that Pat drinks alcohol. But as Cote (1996) observes, it is quite possible to use the same utterance in a context in which Pat is a patient who just had an operation on her esophagus, in which case her ability to drink anything at all could be at issue.

6.3. The English middle construction

In the case of English middles, it is the agent argument, not the patient, that is unexpressed although it is often obligatory in other contexts. It has long been recognized that middles are often improved when they are generic (e.g. van Oosten, 1977):

40. a. This book reads quickly.
    b. ??This book read quickly.

41. a. This soup eats like a meal.
    b. ??This soup ate like a meal.

Moreover, the omitted agent argument receives a general, indefinite, non-specific interpretation (roughly, "people in general"). In these ways, the English middle construction seems to demonstrate a phenomenon parallel to what we saw earlier: the combination of the predictable (non-focal), indefinite, non-specific (nontopical) argument and generic event facilitate the omission of a normally obligatory argument.

6.4. Summary of results

We have seen that causative verbs can indeed appear without their patient arguments or with "fake" objects as long as the discourse situation is appropriate. As noted above, the lexical semantics of causative verbs typically results in the patient argument being prominent in the discourse. But highly predictable, irrelevant patient arguments of particularly emphasized actions can in fact be omitted. Rich lexical factors and constructional influences play important roles in determining discourse prominence. In the following section we see that causative verbs are also more flexible than is often acknowledged in allowing a range of overt complements including resultative and path phrases.

7. Resultative and path phrases

Resultative phrases are secondary predicates that designate a state that is interpreted as caused by the action denoted by the verb. In the examples below we see that causative verbs can in fact appear with resultative phrases (indicated by italics), contra Dowty (1979) and Rappaport Hovav and Levin (1998):

42. a. Chris broke the dishes *to pieces*.
    b. Chris cracked the walnut *open*.
    c. The pastry chef sliced the bread *into triangles*.
    d. Sam shredded the paper *in strips*.
    e. She broke the vase *in half*.
    f. Pat burned the soufflé *black*.
    g. Pat froze the water *into little shapes*.

It might be argued that examples like (42a) should be distinguished from other resultatives because the resultative phrase in (42a) appears only to further specify a change already entailed by the verb (cf. Rappaport Hovav and Levin, 1998, p. 123, ex. 44). However, the particular changes of state involved in this example, and in examples (42b–g), are not actually entailed by the verbs' meaning. Things such as appliances, automobiles and bubbles can be broken without being in pieces. Things in general, and walnuts in particular, can be cracked without being cracked open; bread that is sliced is not necessarily sliced into triangles; paper is not necessarily shredded in strips; food that burns does not necessarily become black, etc. It would be misleading to say that causative verbs are unusual in that the result must be construed as resulting from the action denoted by the verb, because this is true of all resultatives, by definition. Thus it seems the examples in (42) stand as counter-examples to the idea that resultatives cannot be predicated of causative verbs (cf. also Tortora, 1998).

It has been claimed that causative verbs disallow path complements on the basis of examples such as (43) (Dowty, 1979; Rappaport Hovav and Levin, 1998; Tortora, 1998):

43. *Kelly broke the dishes off the table. (Rappaport Hovav and Levin, 1998)

However, it is clear from the examples in (44) that causative verbs can appear with path phrases, even though no change of location is strictly entailed by the meaning of the verb:

44. a. The butcher sliced the salami onto the wax paper.
    b. Joey grated the cheese onto a serving plate.
    c. Sam shredded the papers into the garbage pail. (Goldberg, 1995, p. 171, exs. 99–101).

The verbs *slice*, *grate*, and *shred* are clearly causative verbs in that they entail a definite change of state in their patient arguments. The implication of motion is not an entailment of the verb in isolation: one can imagine a mechanical bread-slicer that slices bread while the bread is contained in a supporting container, preventing the bread from falling away. Yet, there is a conventional scenario in which food is sliced and intentionally and predictably falls to a particular place. In fact, in each of the examples in (44), the action designated by the verb implies some predictable incidental motion that is intended by the agent argument (Goldberg, 1995, pp. 170–175). For example, (44a) entails that the butcher sliced the salami in such a way that it was intentionally caused to fall onto the wax paper; the intentionality is not an entailment of the verb either: it is possible to slice one's finger accidentally.

The relevant constraint is that only what is construed as direct causation can be expressed in a single clause (Fodor, 1970; Shibatani, 1976; Gergely and Bever, 1986). Causative verbs can appear with secondary predicates as long as the end result or path is construed to be directly caused by the action denoted by the verb. This construal does not rely on entailments of the verb in isolation but on the combination

of lexical meaning and general world knowledge about how the action applies in particular circumstances. The same constraint applies generally to verbs in these constructions, not only causative verbs (Goldberg, 1995). The statement in (II) should clarify what is intended by "direct causation" in this circumstance:

> II. Paths of motion may be predicated of arguments of result verbs if the activity designated by the verb is associated with a conventional scenario in which the incidental motion can be construed as an intended and predictable effect.

The difference between (43) and (45a) is that breaking dishes is generally unintentional. Notice the contrast between (45a) and (45b):

45. a. Sam carefully broke the eggs into the bowl.[15]
    b. *Sam unintentionally broke the eggs onto the floor.
    (Goldberg, 1995, p. 171)

Example (45a) is acceptable because we construe Sam as being able to reliably predict that breaking the eggs will cause them to fall into the bowl. In (45b), the act of breaking and the motion off the table are viewed as involving two distinguishable events; there is no intention to tightly link the two for a construal as a single event.

8. Summary of the distribution of causative verbs

We noted at the outset that causative verbs are often assumed to have very restricted distributions. However, we have seen that these verbs are more flexible than is often acknowledged in allowing their objects to be omitted, and in the ability to appear with "fake" objects, resultative and path phrases. In fact, causative verbs often rival activity verbs in their range of distribution. Consider the following three prototypical causative verbs, *freeze*, *break* and *fold*, and the range of argument structures they can appear in:

Example	**Argument Structure Construction**
FREEZE	
46. a. Pat froze the water.	Transitive
b. The water froze.	Inchoative
c. The doctor froze the wart off her finger.	Caused Motion
d. Pat froze the water into cubes.	Resultative
e. The river froze solid.	Intransitive Resultative

[15] Rappaport Hovav and Levin (1995, p. 60) observe that sentences similar to that in (45a) (e.g. *Daphne shelled the peas onto the plate*) involve direct objects that are ambiguous between the entire entity (the peas in their shells) and the contents only (the peas). However, this cannot account for the distinction between (45a) and (45b), since both involve the ambiguous *eggs*. Moreover, none of the direct object arguments in (44a–c) are ambiguous in this way and yet they pattern like (45a) in allowing path phrases.

	f.	Pat froze her daughter a popsicle.	Ditransitive
	g.	The ice sculptor froze her way onto the Today Show.	*way* construction

BREAK

47.	a.	She broke the vase.	Transitive
	b.	The vase broke.	Inchoative
	c.	She broke the walnuts into the bowl.	Caused Motion
	d.	She broke the vase in half.	Resultative
	e.	She broke a grape off the bunch.	Resultative with "fake" object
	f.	She broke off a piece.	Transitive Verb Particle
	g.	She broke him off a piece of the cookie.	Ditransitive
	h.	She broke through the wall.	Intransitive Motion

FOLD

48.	a.	She folded the table.	Transitive
	b.	She folded all afternoon.	Intransitive with omitted object
	c.	The table folds easily.	Middle
	d.	She folded the money into the envelope.	Caused Motion
	e.	She folded the towel flat.	Resultative
	f.	She folded him a napkin.	Ditransitive
	g.	She folded her way to an Origami competition.	*way* construction

The range of distribution of these three verbs is overlapping, but not identical. Specific lexical semantic factors serve to distinguish each of these three verbs (cf. Section 4.3).

9. Conclusion

To conclude, specific generalizations about the omission of patient arguments and the overt appearance of resultatives and path phrases have been offered. Patient arguments may in fact be omitted when they are deemphasized vis à vis the action: when the patient is nontopical (and nonfocal) and the action is particularly emphasized via repetition, contrastive focus, topicality, etc. Resultative and path phrases can appear with causative verbs as long as the resulting change of state or change of location is construed to be a direct effect of the action.

The key to predicting verbal argument realization lies in a full understanding of the way rich lexical meaning interacts with discourse and constructional factors. Causative verbs, like other verbs, have a very varied distribution. As is evident from the examples in 46–48, broad generalizations about the relationship between form and meaning do exist, but they are often most profitably made at the level of the construction instead of at the level of broad classes of verbs (cf. also Jackendoff, 1990, 1997; Goldberg, 1995). How do very generally defined verb classes such as the

class of causative verbs fare as predictors of distribution? The conclusion we are drawn to on the basis of the present data is that distribution is mediated by discourse, constructional and detailed lexical semantic factors.

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