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## **Objecthood: An event structure perspective**

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The notion ‘object’<sup>1</sup> has proved useful in the description of grammatical phenomena in and across languages as it picks out a set of noun phrases characterized by a convergence of what Keenan (1976) calls behavioral and coding properties. Concomitantly, this notion has even been taken as a primitive within certain approaches to linguistic representation (e.g. Relational Grammar, Lexical Functional Grammar) and as amenable to a configurational definition in others (e.g. the Government-Binding framework). Nevertheless, the notion ‘object’ continues to pose a challenge for linguistic theory. For instance, to the extent that it is applicable crosslinguistically, there is a fair amount of variation across languages as to the set of verbs taking NPs identified as objects. Furthermore, it is difficult—and some might even say impossible—to provide a uniform semantic characterization of all objects within or across languages, even if there is agreement that the prototypical objects are ‘patients’—what are sometimes called ‘affected’ arguments. These problems, which reflect the semantic underpinnings of the notion ‘object’, are the focus of this paper.

Since transitive verbs necessarily have objects, a challenge for theories of transitivity is how to deal with the just-mentioned problems involving the semantic correlates of objecthood. In this paper I revisit these issues from a novel perspective, showing that the notion ‘object’ of a transitive verb can be fruitfully explored in the context of recent work on the structure and representation of verb meaning and the licensing of arguments. Much recent research has converged on the notion ‘event’ as an important organizing notion in the linguistic representation of meaning, and the grammatically-relevant component of a representation of verb meaning is now often called an ‘event structure’ because its form is determined by the basic event type of the verb. I suggest that two distinct event structures can give rise to objects: a complex, causative event structure and a simple event structure. I argue that these two sources for objects shed light on some of the well-known challenges associated with the semantic underpinnings of objecthood. I use the transitive verbs of English to make these points, although I believe that the results of this research will largely generalize across languages (see section 4).

## 1. The ‘other’ transitive verbs

To set the stage I review some properties of objects and transitivity. This background sketch presents my personal perspective on well-known material, and it draws on the work of the many researchers who have previously addressed these topics, and to whom I am indebted, including, Comrie, Croft, Delancey, Dixon, Dowty, Fillmore, Hopper & Thompson, and Van Valin. The transitive verbs of a language are, loosely speaking, those verbs that display the unmarked expression of arguments for two-argument verbs; their arguments are said to bear the core grammatical relations ‘subject’ and ‘object’. Many discussions of transitivity recognize a core—and perhaps for that reason privileged—subset of transitive verbs. These verbs have a clear semantic characterization, fitting the ‘agent act on and cause an effect on patient’ mold that is behind the name ‘transitive’. Members of this set in English include *cut*, *destroy*, *kill*, and transitive *break* and *open*. I call these verbs, which are defined by a conjunction of syntactic and semantic properties, ‘core transitive verbs’ (CTVs); these are roughly equivalent to what Andrews (1985) calls ‘primary transitive verbs’. Given this definition, CTVs are verbs that qualify as ‘highly’ transitive in Hopper & Thompson’s 1980 sense, and their arguments clearly meet Dowty’s 1991 agent and patient proto-role entailments.

What this paper focuses on is the contrast between the CTVs and the other English transitive verbs—the considerable number of English transitive verbs that do not fit the semantic profile of CTVs. As is well known, not only are there transitive verbs in English whose objects do not bear the semantic role of ‘patient’—often considered the prototypical role of objects—(or roles bearing other names but defined as having a similar scope), but there are also transitive verbs whose objects bear a range of other roles. The assortment of roles associated with objects is demonstrated by the sentences in (1). To underscore the variety, these sentences share the same NPs as their subjects and objects, varying only in the verb and in the role that might be attributed to the object. Additional options, such as experiencer objects, are also found, but not with the specified choice of subject and object.

- (1) The engineer cracked the bridge. (patient)  
The engineer destroyed the bridge. (patient/consumed object)  
The engineer painted the bridge. (incremental theme; cf. Dowty 1991)  
The engineer moved the bridge. (theme)  
The engineer built the bridge. (effected object/factitive; cf. Fillmore 1968)  
The engineer washed the bridge. (location/surface)  
The engineer hit the bridge. (location; cf. Fillmore 1970)  
The engineer crossed the bridge. (path)  
The engineer reached the bridge. (goal)  
The engineer left the bridge. (source)  
The engineer saw the bridge. (stimulus/object of perception)  
The engineer hated the bridge. (stimulus/target or object of emotion)

Furthermore, there are many English transitive verbs whose objects cannot be readily assigned roles from the most common semantic role inventories. Among them are the verbs with inanimate objects in (2) and with animate objects in (3).

- (2) The engineer praised the bridge.  
The engineer touched the bridge.  
The engineer avoided the bridge.  
The engineer owned the bridge.  
The engineer imagined the bridge.  
The engineer studied the bridge.
- (3) The engineer ignored the architect.  
The engineer praised the architect.  
The engineer greeted the architect.  
The engineer selected the architect.  
The engineer supervised the architect.  
The engineer fought the architect.  
The engineer met the architect.  
The engineer visited the architect.  
The engineer followed the architect.

It is difficult to attribute any easily characterizable, yet somewhat general, semantic roles to the objects in these sentences. It is sentences such as these that lead to the introduction of verb-specific labels for participants such as ‘avoidee’ or ‘praisee’ and comparable *-ee* words. Although the difficulty in assigning semantic roles to such objects is most often remarked on in the context of discussions of the drawbacks of semantic role-based approaches to lexical semantic representation (e.g. Dowty 1991), this difficulty is at the very least a signal that the semantic role of these objects is not the patient role and thus that these verbs are not CTVs.<sup>2</sup>

On the basis of these observations, the class of English transitive verbs can be partitioned into the CTVs and the set of transitive verbs that do not meet the CTV semantic profile. I refer to these other, more often than not neglected, English transitive verbs as the ‘noncore transitive verbs’ (NCTVs). The NCTVs of English include the verbs in (1)-(3), as well as verbs such as *jiggle*, *kick*, *pound*, *rub*, *shake*, *stab*, and *sweep*. CTVs constitute a semantically-defined subset of the transitive verbs of a language. NCTVs also form a subset of the transitive verbs, but one that apparently lacks a unified and independent semantic characterization. The class of NCTVs is defined negatively in terms of a property its members lack: its members are not CTVs.

As has been noted before, these observations most obviously suggest that it is not possible to provide unified semantic characterizations of either objecthood or transitivity or at least that attempts to provide characterizations are unlikely to succeed. In fact, cluster property or prototype approaches to transitivity have been

developed to accommodate observations such as these (Dowty 1991, Hopper & Thompson 1980, Lakoff 1977). I will accept that it is not possible to provide such unified characterizations of transitivity and objecthood, and I will not try yet again to accomplish this goal. Instead, I show that it might be possible to characterize what sets NCTVs apart from CTVs in the context of a theory of event structure; in so doing, I hope to explain the source of some of their distinguishing properties.

First, I review another set of differences between CTVs and NCTVs. As the examples in (1)-(3) show, English NCTVs include those transitive verbs whose objects are hardest to subsume under the notion 'patient' or are most difficult to characterize at all semantically. NCTVs also tend to diverge from CTVs with respect to consistency of argument expression both within English and across languages. These semantic and typological points are both found in the literature, but they have not often enough been brought together. The remainder of this section presents support for these argument expression observations.

The transitive verbs of every language include CTVs—verbs that fit the 'agent act on and affect patient' semantic mold—and languages show considerable agreement as to the make-up of their set of CTVs. Discussions of transitivity single out this class of transitive verbs not only because of their shared semantic characterization, but also because if a verb in some language meets the CTV semantic mold, then its translation equivalents in other languages are invariably transitive verbs. That is, the translation equivalents of English CTVs, which by their very nature fit the CTV semantic profile, also number among the transitive verbs of the second language. For example, English *kill* and *cut* have transitive *uccidere* and *tagliare*, respectively, as their Italian translation equivalents. Thus, CTVs provide a reference point for crosslinguistic comparisons in studies of transitivity, and it is this property that prompted Andrews' (1985) recognition of a set of 'primary transitive verbs' in a paper in a volume intended in part as a manual for fieldworkers.

What makes the existence of comparable sets of CTVs across languages important is that as has been observed in numerous studies of transitivity, the translation equivalents of English NCTVs need not be transitive verbs. The consequence is that one language's object is expressed as a second's oblique. For example, grammars and articles on Caucasian languages note that there is only partial overlap between the transitive verbs of English and of the Caucasian languages. Statements such as the following from Catford are typical: 'Certain verbs that we would regard as distinctly transitive normally occur in N.W. Caucasian in the nominative construction. These include the verbs 'beat', 'bite', 'expect', 'harm', 'help', 'kiss', 'look at', 'meet', 'push', 'read', 'stab', 'wait for'.' (1975:44). A nominative construction is a two-argument construction with a nominative-oblique case array that contrasts with the two-argument ergative-absolutive case array found with CTVs, but that is reminiscent of the nominative case array found with intransitive verbs. What is significant is that the verbs Catford lists are NCTVs. Similarly, a perusal of Blume's 1998 recent study of verbs taking dative complements crosslinguistically

shows a variety of NCTVs among their English translation equivalents. Blume's list of Hungarian verbs with dative complements includes verbs with transitive English counterparts, such as the verbs in (4), and again these English verbs are NCTVs.

- (4) *felel* 'answer', *gratulal* 'congratulate', *integet* 'greet', *köszön* 'greet' (Blume 1998:273)

To take a third example, Russian has a number of verbs which take instrumental complements with transitive English counterparts; these verbs form a coherent semantic class, having been described as verbs of authority, ruling, or disposition.

- (5) *rukovodit* 'rule/direct/manage', *upravljat* 'govern', *komandovat* 'command', *zavedovat* 'manage', *obladevat* 'master', *vladet* 'rule, own', *zavedovat* 'be in charge', *dirižirovat* 'conduct (an orchestra)'  
(Nichols 1975:346-347, 1984:201, Dezsö 1982:58-59)

Nichols writes that the Russian phenomenon shows some productivity. She cites Lithuanian verbs of authority, ruling, or disposition as intransitive verbs taking a dative second argument. Furthermore, she notes that verbs from this semantic class have been reconstructed as governing the genitive in proto-Indo-European and points to 'the formal renewals of governing case in the daughter languages' (1975:347). Nichols' comments suggest that a range of languages single out this semantic class of verbs, which number among the English NCTVs, for special treatment with respect to argument expression. The examples from various languages suggest that languages overlap in their class of CTVs, but outside this class there seem to be language-specific factors which determine whether the two-argument verbs that do not meet the CTV semantic profile are transitive or not.

Another related observation about CTVs has not to my knowledge been discussed in the literature. When an English CTV has a near-synonym it is always transitive. This is not surprising; given the shared meaning, the synonym would itself be expected to be a CTV. For example, the verbs *break*, *crack*, *fragment*, and *shatter* are all transitive verbs in English. Similarly, other near-synonym pairs number among the English transitive verbs, such as *heat/warm*, *cool/chill*, *melt/thaw*, and *tear/rip*. Those transitive verbs that have near-synonyms that are intransitive appear to be NCTVs. For instance, *request* and *demand* have as a near-synonym the verb *ask*, which must introduce its second argument with the preposition *for*.<sup>3</sup> Compare also transitive *watch* with *look at* and transitive *cross* with *go across*. A side-effect of the existence of such NCTV/intransitive verb near-synonym pairs are pairs of objects and obliques apparently bearing the same semantic role. In some sense, this is the English-internal manifestation of the just-described crosslinguistic variation.

To summarize, if one were to ask which transitive verbs in English are most likely to have translation equivalents that are not transitive verbs or to have near-synonyms that are not transitive verbs, the answer is that it is the NCTVs, not the

CTVs, that show these options. These contrasts between CTVs and NCTVs are significant because they show that when a verb describes an event with two participants, it is not possible to simply assume that this verb is transitive and that its nonactor argument is expressed as an object. Thus, theories of argument expression which assume that a verb's transitivity is known and then provide a means for determining which argument is the subject and which one is the object, such as Dowty's (1991) proto-role approach, take too much for granted.

## **2. Towards a better understanding of the CTV/NCTV distinction**

Objects, by definition, necessarily cooccur with transitive verbs. The notion 'object' is difficult to disentangle from the notion 'transitive'; nevertheless, this paper focuses on objects of verbs that are recognized to be transitive in English and not on transitivity more generally. Given the interrelationship between transitivity and objecthood, the results of this study should, however, bear on the nature of transitivity. Restricting the discussion to objects is not unreasonable in light of the results of Tsunoda's (1985) evaluation of Hopper & Thompson's (1980) multifactor approach to transitivity. Hopper & Thompson identify ten factors contributing to transitivity, including some that are tied to properties of subjects and others are tied to properties of objects. A priori, the expectation would be that a verb whose subject does not rank highly with respect to the subject properties would cooccur with an object that did not rank highly with respect to the object properties; however, Tsunoda points out that the subject- and object-related factors do not covary as expected. Tsunoda shows that a verb that patterns like a prototypical transitive verb with respect to subject-related factors may not pattern like one with respect to the object-related factors and may, in fact, not be a transitive verb. Tsunoda's observations, then, suggest that the properties of subjects and objects that contribute to transitivity can be studied independently, as they are in this paper. There is a further reason to believe that it is properties of objects that are the source for the differential behavior of CTVs and NCTVs. Most NCTVs, and certainly those that are used to illustrate the points made in this study, are verbs with the animate, volitional subjects that in principle make 'good' agents—the prototypical role of the subject of CTVs. Given this, the subjects of NCTVs are unlikely to be responsible for setting NCTVs apart from CTVs.

Previous work on transitivity has repeatedly suggested that there is a semantic prototype for transitive verbs (e.g. Croft 1991, DeLancey 1984, Lakoff 1977)—roughly the characterization that defines the CTVs. Verbs can be assessed according to their fit to the prototype, and those that fit the prototype less well—that is, the NCTVs—are also considered less likely to show the behavioral properties of transitive verbs. This paper moves beyond previous work in showing that there is more to the distinctive properties of NCTVs than a failure to meet the transitive pro-

tototype. I argue that the failure to meet the transitive prototype is reflected in such verbs having a fundamentally different event structure than the CTVs and that these event structure differences are behind the distinctive properties discussed in section 1. The goal of this paper, then, is to show how recent research on the structure of verb meaning, the linguistic representation of events, and the semantic licensing of arguments can offer further insight into the CTV/NCTV distinction, including the variability in semantics and expression of the objects of NCTVs.

This exploration takes as its starting point several assumptions concerning the structure of verb meanings, the nature of event structures, and the semantic licensing of arguments. (See L&RH 1999 and RH&L 1998 for more discussion and references.) I introduce these assumptions here and then elaborate on them in section 3. The first assumption is that a verb's meaning is bipartite, consisting of a core meaning—what is idiosyncratic to that verb—and an event structure, which the verb shares with other verbs of the same semantic type. The second assumption is that event structure representations distinguish between complex causative events, consisting of two subevents, and simple noncausative events, consisting of a single subevent. The third assumption is that although most argument NPs in the syntax are licensed by their verb's event structure as well as its core meaning, some arguments are licensed only by the verb's core meaning. Such arguments are found with two-argument verbs with simple event structures, but not with two-argument verbs with complex event structures. The fourth assumption is that principles governing the event structure-to-syntax mapping ensure that facets of the event structure are preserved in the syntax.

Let me briefly outline how these assumptions are relevant to understanding the CTV/NCTV distinction and, in so doing, preview the remainder of this paper. In section 3, I show that given these four assumptions, verbs with complex, causative event structures are obligatorily transitive, while two-argument verbs with simple event structures may—but need not—be transitive because the argument licensed by the verb's core meaning does not fall under the general event structure-to-syntax mapping principles. Thus, two distinct event structures can give rise to verbs with objects. In section 4, I show how these two sources for objects provide insight into the challenges of objecthood reviewed in section 1. I propose that the CTVs have a causative event structure. The realization of the two arguments licensed by this event structure is constrained by well-formedness conditions on the event structure-to-syntax mapping, which require that these verbs be transitive. As a consequence, there is crosslinguistic agreement that CTVs are transitive verbs. Furthermore, as their objects have a source in the event structure, there is uniformity in their semantic characterization and expression. In contrast, I propose that NCTVs have a simple event structure, and thus they have an argument licensed simply by the verb's core meaning which is not constrained by the well-formedness conditions on the event structure-to-syntax mapping. I demonstrate that the multiplicity of semantic characterizations for NCTV objects in English and the crosslinguistic variability in the

syntactic expression of the objects of English NCTVs is a consequence of the way that such arguments are licensed.

### **3. A theory of event structure**

Since I claim that an understanding of the distinctive properties of CTVs and NCTVs follows from a theory of event structure, I must first set out such a theory. In this section I introduce the theory presented in RH&L 1998. A foundational assumption of this theory—and many other theories of lexical semantic representation—is that a verb’s meaning is composed of two types of building blocks: an event structure template and a core meaning. In section 3.1 I introduce the two types of meaning components and argue for a distinction between simple and complex event types. In section 3.2 I show how the two types of components are integrated into event structures and then demonstrate how they affect the licensing of arguments. In this section I also show that arguments are licensed differently in simple and complex event structures. I claim that as a result, the complexity of a verb’s event structure is to some extent dissociated from the number of arguments it takes, so that verbs with simple event structures may have one or two arguments, while verbs with complex event structures have two. I substantiate this claim in section 3.3, showing that one- and two-argument verbs describing simple events pattern together. In section 3.4 I present a well-formedness condition on the realization of arguments in the syntax, showing that it preserves aspects of the event structure in the syntax.

#### **3.1. The structure of event structure**

Following much previous work (Grimshaw 1993, Hale & Keyser 1993, Jackendoff 1990, 1996, Pinker 1989, among others), the theory of event structure presented in RH&L 1998 rests on the assumption that verb meanings consist of two kinds of building blocks. (See Taylor 1996 for a discussion of the opposite viewpoint—that these two facets of verb meaning cannot be distinguished.) The first type could be styled the ‘structural’ facets of verb meaning; these components of meaning define the possible types of events. In contrast, building blocks of the second type could be considered to specify a verb’s ‘core’ meaning in that they capture what is idiosyncratic to each verb. Thus, the structural facets are shared by entire sets of verbs, while the idiosyncratic facets serve to differentiate one verb from others sharing the same structural facets of meaning. I now elaborate on each type of building block.

I refer to the representations of verb meanings as event structures, following what is now established usage. I refer to the structural components of a verb’s meaning as its ‘event structure template’ since this facet of meaning represents the ontological type of the event denoted by the verb. The event structure template can



be viewed as the grammatically-relevant component of an event structure in that its structure determines various grammatical properties including the realization of arguments. (See L&RH 1995, RH&L 1998, and section 3.4 for discussion.) Thus, the event structure templates define semantic classes of verbs whose members share syntactically- and morphologically-salient properties.

I assume that there is a small set of event structure templates which comprise the inventory of possible event types. Although in much recent work the ontological types of events are inspired by the Vendler-Dowty aspectual verb classes (e.g. Foley & Van Valin 1984, van Hout 1996, Pustejovsky 1995, Van Valin 1993, Van Valin & LaPolla 1997), I do not take the event structure templates to necessarily be aspectually defined.<sup>4</sup> Following the discussion in L&RH 1999, which in turn draws on ideas elsewhere in the literature on event structure, I assume that the major distinction is between event structure templates that are simple and those that are complex; the same distinction carries over to the event structures these templates give rise to. Simple event structure templates consist of a single subevent; complex event structure templates are themselves constituted of two subevents, each taking the form of what could independently be a well-formed simple event structure template. Listed below are several major event structure templates; each is identified according to whether it represents a simple or complex event.

(6) Simple event structure templates:

- a. [ x ACT<MANNER> ] (activity)
- b. [ x <STATE> ] (state)
- c. [ BECOME [ x <STATE> ] ] (achievement)

(7) Complex event structure template:

- [ [ x ACT<MANNER> ] CAUSE [ BECOME [ y <STATE> ] ] ] (causative)

RH&L (1998:108) identify several ontological subtypes of simple events: activities, states, and achievements. The event structure templates presented in (6) are intended to represent these types. RH&L provide these types with aspectually-motivated labels since as a first approximation such labels seem appropriate and have been adopted in other work. Although it seems right to posit an aspectually-characterized stative event type, whether the other types of simple events should receive an aspectual characterization is a matter requiring further evaluation.<sup>5</sup>

A potential problem is presented by semelfactive verbs—verbs that can describe instantaneous events that do not involve a change of state, such as *beep*, *blink*, *cough*, and *tap*. Although some studies of aspect recognize a semelfactive event type distinct from the activity type (e.g. Olsen 1994, Smith 1991), semelfactive verbs generally pattern with activity verbs in terms of grammatical properties that might have their source in event structure, such as the properties to be discussed

in section 3.3. Semelfactives and activities are known to be related; many semelfactive verbs also allow for activity interpretations when the events they describe are iterated; thus, the verb *cough* is a semelfactive when it describes one cough, but an activity when it describes a series of coughs. I use the term ‘semelfactive verb’ to refer to a verb which allows a semelfactive interpretation, recognizing that such verbs typically also allow durative uses. In Olsen’s (1994) terms, these verbs are underspecified for durativity, contrasting with activity verbs, which are necessarily durative. If semelfactives and activities do pattern together, then they should be assigned the same event structure template, and, consequently, the inventory of event structure templates cannot include aspectually-defined activity and semelfactive event types, even though I and others have made extensive use of the activity type. Rather an alternative, nonaspectual definition of the relevant event type that encompasses both activity and semelfactive verbs is necessary, for instance, in terms of the notion ‘internally caused event’ introduced by L&RH (1995). What is at stake is the interpretation of the primitive ACT in (6a). As the label suggests, this primitive is motivated by identifying the template with the activity class—it stands in for what makes an activity an activity—but it now needs a broader interpretation as standing in for what is essential to both activity and semelfactive events. Nevertheless, for lack of a better term I continue to refer to the template in (6a) as an activity template.

Assuming then that semelfactive and activity verbs share the same event structure template, the differences in durativity that distinguish them would be attributed to their constants rather than to their event structure templates. This proposal is not implausible. Semantically-coherent grammatically-relevant verb classes of the type discussed in Levin 1993 often contain aspectually heterogeneous members. Yet given their members’ shared behavioral properties, they should be assigned a common event structure. Some verbs of impact, for example, necessarily denote durative events (e.g. *batter*, *beat*) and, thus, are basically activities; others can be either punctual or, if describing an iteration of contacts, durative (e.g. *hit*, *kick*, *pound*, *slap*, *thump*, *thwack*) and, thus, are basically semelfactives. It would seem counterproductive to assign these verbs distinct event structures when they share the various behavioral properties attributed to them in Levin (1993:148-150).

Studies with aspectually-motivated event types also include a notion of complex event, but provide it with the aspectual characterization ‘accomplishment’. My recent work with Rappaport Hovav (L&RH 1999, RH&L 1999) suggests that there is a complex event type, but it is not aspectually defined. Rather complex events are causatives, as encoded in the event structure templates they are assigned in (7). I do not try to equate the notion ‘causative’ and the aspectual notion ‘accomplishment’. Causation clearly plays a part in argument expression, but it cannot be reduced to aspectual notions, as noted as early as McCawley 1976. Dowty (1979) also articulates reasons for not conflating the class of causatives with that of accomplishments in Chapter 3 of his book *Word Meaning and Montague Grammar*, although this point

of view is not acknowledged by those building on his work. More recently, Hay et al. (1999), L&RH (1999), Pustejovsky (1991), RH&L (1999), and Van Valin & LaPolla (1997) present studies demonstrating the independence of telicity and causation. To take an example from Hay et al. (1999), ‘degree achievements’ (e.g. *cool, lengthen, widen*) are transitive when causative and intransitive when not, independent of their telicity; that is both transitive and intransitive degree achievements may be either telic or atelic.

The second type of component of verb meaning encodes a verb’s ‘core’ meaning—that part of its meaning which is idiosyncratic to it and thus serves to distinguish it from other verbs with the same event structure template. RH&L (1998) call this component the ‘constant’ because its typical representation in lexical semantic representations that take the form of a predicate decomposition is as a fixed value filling an argument position in the decomposition. Constants, then, contrast with the variables in the event structure that are associated with argument XPs in the syntax. RH&L (1998) assume that the set of constants is open-ended, but that each constant has an ontological categorization, chosen from a small fixed set of types (e.g. thing, location, state, manner). Each constant also has an associated name (i.e. a phonological string; RH&L 1998), which the constant also gives to the verb. By its very nature, a constant determines the minimum number of arguments in the associated event (see also Goldberg 1995, van Hout 1996), a property that is discussed extensively in section 3.2.

Constants are integrated into event structure templates by virtue of their ontological type to form event structures; each such pairing can be viewed as constituting a basic verb meaning. The ‘name’ associated with an event structure comes from the constant. In the event structure templates in (6) and (7), constants are italicized, placed in angle brackets, and identified by their ontological types. RH&L (1998) assume that most constants are integrated into event structures as arguments of predicates, but that manner constants, which characterize activity and semelfactive verbs such as *laugh, run, or sneeze*, are modifiers of the event structure; the modifier relationship is notated via subscripting in the template.

### 3.2. The licensing of NP arguments

Studies of the lexical semantics-syntax interface have focused almost exclusively on the structural components of verb meanings because of their fundamental role in determining argument expression. This facet of meaning has been variously represented via structured or unstructured semantic role lists, predicate decompositions, event structures, and constructions. RH&L (1998) demonstrate that the idiosyncratic component (i.e. the constant) also plays a considerable part in determining syntactic behavior, and this paper should reinforce their conclusion. In this section I elaborate on the contribution of the constant to the licensing of arguments, since I will claim in section 4 that the differences between CTVs and NCTVs to a large

extent reflect differences in the way their objects are licensed.

The contribution of the constant to the licensing of arguments can be illustrated by examining activity verbs. Although activity verbs are commonly considered to be one-argument verbs, there are in fact many two-argument activity verbs. Salient among them are verbs of surface contact and motion such as *scrub*, *sweep*, and *wipe*, discussed by RH&L (1998), who establish that two-argument activity verbs are an important class of verbs in their own right (see also Van Valin 1990, Van Valin & LaPolla 1997). Thus, the activity verb *run* has one argument, while the activity verb *sweep* has two.<sup>6</sup>

- (8) a. Pat ran.  
b. Leslie swept the floor.

Assuming that all activity verbs denote events of the same ontological type, then they should all have the same event structure template, independent of whether they have one or two arguments. If so, the number of arguments an activity verb selects must reflect idiosyncratic properties of that verb rather than properties of its event structure template, and thus this number must have its source in the constant. The same point applies to semelfactives: there are one argument semelfactives, such as *wink*, and two argument semelfactives, such as *hit*; again the number of arguments selected must reflect the nature of the constant associated with these verbs. Following others (Goldberg 1995, Grimshaw 1993, van Hout 1996), RH&L (1998) propose that associated with each constant is the minimum number of participants in the associated event. By its very nature an event of running minimally involves a runner, so its constant is associated with a single participant. In contrast, an event of sweeping minimally involves a sweeper and a surface, so its constant is associated with two participants. Similarly, the semelfactives *wink* and *hit* differ as to whether their associated event minimally involves one participant or two.

When a constant is integrated into an event structure template to form an event structure, the participants associated with the constant must be matched up, if possible, with appropriate—or in the words of Goldberg (1995:50) ‘semantically compatible’—variables in the event structure template.<sup>7</sup> As an example, the manner of motion verb *run*, which takes its name from a constant that specifies a certain manner of motion, is associated with an event involving a single participant, a runner. As a manner constant, this constant is integrated into an activity event structure template, as in (9); the single participant associated with the constant is semantically compatible with the single variable in the activity event structure template, so the two can be matched up.

- (9) a. Pat ran.  
b. [ x ACT<RUN> ]

However, some verbs lexicalize a constant associated with more participants than there are variables in the corresponding event structure template. In such instances,

one participant is not paired with a variable in the event structure template. This situation arises with two-argument activity and semelfactive verbs. The activity verb *sweep*, for example, lexicalizes a manner constant associated with two participants, but this constant is integrated into an activity event structure template which only has one variable, as in (10). Since the variable in the activity event structure template represents the actor, it is the sweeper participant that is paired with this variable in the event structure. The surface is not matched up with a variable in the activity template and must be integrated into the resulting event structure in some other way. Its presence, RH&L (1998) contend, is licensed by the constant alone; this property is represented by underlining such participants in the event structure, as in (10b).<sup>8</sup>

- (10) a. Leslie swept the floor.  
 b. [ x ACT<*SWEEP*> y ]

Given RH&L's (1998) proposal, two types of variable positions—or participants—can be identified in event structures. I refer to the participants filling variable positions in an event structure that are required by the event structure template as 'structure' participants (though these participants are also required by the constant), and the arguments that realize these positions in the syntax as 'structure' arguments (RH&L 1998; see also Grimshaw 1993). I refer to those participants in a verb's event structure which are there by virtue of the requirements of the constant alone as 'pure constant participants' and to the syntactic arguments that realize them as 'pure constant arguments'. The subjects of *run* and *sweep*, then, realize structure participants, but the object of *sweep* exemplifies a pure constant participant. Similarly, since semelfactive verbs also have the activity event structure, one-argument semelfactives would have only a structure participant, while two-argument semelfactives would have a structure participant and a pure constant participant. As a consequence, there are two types of NP arguments in the syntax: those that realize structure participants, and thus are required both by the event structure template and by the constant, and those that realize constant participants, and thus are licensed by the constant only and not by the event structure template.

Two-argument activity and semelfactive verbs are not the only verbs whose constants are associated with two participants. RH&L (1998) argue that externally caused verbs of change of state such as *break*, *open*, and *widen* are also associated with such constants. What is idiosyncratic to each of these verbs is the state it lexicalizes, and, as L&RH (1995) argue, this state is one that is conceptualized as being brought about by a cause that is external to the entity that changes state. Thus, these verbs describe states that necessarily involve the existence of a causer as well as an entity that changes state; that is, two participants are associated with the constant. RH&L argue that such verbs are associated with the complex causative event structure in (7).<sup>9</sup> Even though the nature of the causing subevent is not specified by such verbs, the event structure associated with *break* must nonetheless

include a representation of this causing subevent, as in (11).

(11) [ [ x ACT<*MANNER*> ] CAUSE [ BECOME [ y <*BROKEN*> ] ] ]

Since the event structure template has two variables, each participant associated with the constant can be matched up with one of them, leaving no pure constant participants. In this respect, these verbs differ from two-argument activity verbs.

What is important is that the event structure templates of simple and complex events with two participants differ as to the number of associated structure participants, although both can be realized by transitive verbs. The event structure templates for complex events include two structure participants, one for each subevent. In contrast, the templates for simple events have only one subevent and require only one structure participant, since this is what is essential to activities and semelfactives, although there may be a second, pure constant participant representing the nonactor argument of two-argument activity and semelfactive verbs. RH&L's (1998) theory of event structure, then, attributes a special status to this nonactor argument. Role and Reference Grammar (Van Valin 1990, 1993) also attributes a special status to this argument, but characterizes it differently. Van Valin and more recently Van Valin & LaPolla (1997) recognize the existence of multiple argument activity verbs and associate these verbs with a single 'macrorole', unlike causative verbs, which have two. Since macroroles serve as an interface between semantic roles and grammatical relations, they play a considerable part in determining the expression and behavior of arguments. By characterizing the nonactor argument of a two-argument activity verb as not having a macrorole, Role and Reference Grammar essentially differentiates the objects of two-argument activity and causative verbs.

### 3.3. One- and two-argument simple event verbs pattern together

Given RH&L's theory of event structure, grammatically-relevant sets of verbs are defined by shared event structure templates. Since a verb's event structure template is determined by its constant's ontological type, verbs with constants of the same ontological type have the same event structure template. This should be the case even for verbs whose constants are associated with different numbers of participants, as in the case of one- and two-argument activity and semelfactive verbs. Thus, such verbs would be expected to pattern together in terms of their grammatical behavior, even if the difference in number of participants might be reflected in a difference in transitivity, as with English one- and two-argument activity and semelfactive verbs. In this section I present independent evidence to support the unified treatment of one- and two-argument verbs of these two types.

This prediction is perhaps trivially met in that the actor participant of two-argument activity and semelfactive verbs, like that of one-argument activity and semelfactive verbs, is realized as a subject in active sentences, while the nonactor

participant of two-argument activities and semelfactives never is. This commonality is expected since the actor of both types of verbs realizes the single structure participant associated with these verbs' event structure template and thus should have the same syntactic expression.

Strong evidence for the prediction that one- and two-argument activity and semelfactive verbs pattern together comes from the English resultative construction. For reasons of space, I illustrate this point using the reflexive resultative construction, but the same point could be made using the larger class of nonsubcategorized NP resultatives; this class includes the reflexive resultatives, as well as the much-discussed *way* form of the resultative construction, which also could have been used for illustration. In the reflexive resultative construction the verb takes as its object a reflexive pronoun coreferential with the subject of the verb; this reflexive, however, cannot be understood as a normal object of the verb. Through this pronoun, a result XP can be predicated of the subject of the verb. (12) and (13), respectively, illustrate one- and two-argument verbs in reflexive resultatives. Each set of examples includes both activities (examples (a-b)) and semelfactives (examples (c-d)), the latter sometimes in an iterative use. The fact that both types of verbs are attested supports the proposal in section 3.1 that they have the same event structure.

- (12) a. In the drawing rooms Katie and Eliza laughed themselves into fits. (M. Wesley, *A dubious legacy*, New York: Viking, 1992, 270)
- b. George had sweated himself wet in it [=the bunny suit] ... (S.F. Mickle, *Replacing dad*, Chapel Hill, NC: Algonquin, 1993, 96)
- c. Allison had yawned herself into catatonia ... (B.J. Oliphant, *Death and the delinquent*, New York: Fawcett, 1992, 24)
- d. "Don't use my name," I said, blinking myself awake. (L. Matera, *Havana twist*, New York: Simon and Schuster, 1998, 56)
- (13) a. Thirty-two dairy cows ate themselves to death ... (32 Washington cows die from eating too much, *The New York Times*, March 29, 1998, 20)
- b. By that time Sophie had swept and scrubbed herself into a state when she could hardly move. (D. Wynne Jones, *Howl's moving castle*, New York: Greenwillow Books, 1986, 43; cited in Simpson 1997)
- c. She slammed herself inside her bedroom. (N. Star, *Up next*, New York: Pocket Books, 1998, 55)
- d. And kicked himself into contention for the league's Most Valuable Player honor. (J. Duarte, Goal-oriented: Rested Dougherty has Hot-shots ready for the title run, Sports Section, *The Houston Chronicle*, August 8, 1997, 6)

The distribution of data supports an event structure-based generalization: these verbs are found in the reflexive resultative construction because they share a simple event structure, independent of whether they select one argument or two. Another analysis, however, has been proposed to handle the same data. Carrier & Randall (1992), among others, note that some transitive verbs are found in nonsubcategorized NP resultatives—the larger class of resultatives which includes the reflexive resultatives—and claim that these transitive verbs are those like *eat* as in (13a) that allow unspecified objects (e.g. *The cows ate*) and thus are independently intransitive. If this correlation is correct, then the resultative data might be dismissed as irrelevant to the argument for a common event structure for one- and two-argument activity and semelfactive verbs. However, a verb’s subcategorization options should reflect a verb’s event structure, suggesting that an event structure-based generalization is to be preferred, all things being equal. Moreover, RH&L (1998) provide an event structure account, reviewed in section 3.4, for why it is precisely simple event verbs—and not complex event verbs—that are found in the reflexive resultative construction. Furthermore, RH&L (1999) argue that the event structure-based account of resultatives has better empirical coverage than syntactic accounts. If RH&L are correct, the event structure explanation of verb distribution in reflexive resultatives is once again favored over the subcategorization explanation.<sup>10</sup>

As Haj Ross pointed out to me, another phenomenon that appears to single out both one- and two-argument activity and semelfactive verbs is *out-* prefixation. *Out-* can be prefixed to certain verbs to form a derived transitive ‘comparative’ verb. When affixed to a verb *V*, it creates a verb *out-V* such that ‘*x out-Vs y*’ mean ‘*x Vs to a degree greater than y*’. The prefix *out-* attaches to one-argument activities and semelfactives such as *grumble*, *laugh*, *run*, *sneeze*, *talk*, as well as the verbs in (14).

- (14) a. Here was a young girl who could out-strut anything on two legs. (G.F. Edwards, *A toast before dying*, New York: Doubleday, 1997, 169)
- b. Lacing through the place is a cooling creek, outbabbled by the customers, where they chill their beer, vodka and wine. (F.X. Clines, Tea at dusk in Tashkent is a ritual for men alone, *The New York Times*, July 22, 1990, 6)
- c. Stockowski and Dixon were outjumped by bigger, stronger girls ... (J.C. Cotey, Parents enjoy sweat rewards, *St. Petersburg Times*, July 10, 1999, 7C)

Again both activity and semelfactive two-argument verbs take the prefix, as in (15).

- (15) a. I’m no slouch in the food department, but she consistently outordered and outate me. (C. Garcia-Aguilera, *Bloody shame*, New York: Putnam’s, 1997, 4)



- b. "... Georgia will have to outscratch and outclaw the Gators just to beat them," Spurrier said Monday. (T. Barnhart, Spurrier defends comments; Poor-mouthing is getting old, *The Atlanta Journal and Constitution*, November 12, 1991, E1)
- c. "... They outhit us and outplayed us. ... " (D. Ventura, School sports; Division 2 North; Danvers dances, *The Boston Herald*, June 13, 1999, B46)
- d. Whereupon their American Security Bank teammates calmly outtugged their obviously straining opponents ... (P.S. Canellos, Jocks of all trades; Playing the corporate games, *The Washington Post*, July 14, 1986, C1)

This prefix is not found with complex event verbs, such as verbs of change of state (e.g. *break, destroy, melt, murder, open*).<sup>11</sup> The characterization of the distribution of this prefix given in previous studies resembles that of reflexive resultatives: *out-* is said to attach to intransitive verbs, including transitive verbs that can be used intransitively with unspecified objects (Bresnan 1982, Irube 1984). Again, a characterization of the relevant verbs in event structure terms is possible and might be preferred for the same reasons as with resultatives. Of course, what is necessary is an account of why simple event verbs are picked out by this prefix, but the fact that one- and two-argument activity and semelfactive verbs pattern together is sufficient to suggest that their event structure is what might be sanctioning *out-* prefixation.

To summarize, if the class of activity and semelfactive verbs, as defined by a particular shared simple event structure template, is indeed an important one, then such verbs would be expected to display at least to some extent the same behavior independent of whether their constants are associated with one or two participants. This section has presented evidence in support of this prediction. Such evidence is significant since the shared behavior shows that certain well-defined classes of verbs are insensitive to the number of arguments that their members take, contrary to what is likely to be taken to be conventional wisdom, as represented, for instance, in the importance of constructs like the transitive/intransitive verb dichotomy or subcategorization frames.

### 3.4. The contribution of event structure to argument expression

With the background on event structure and argument licensing in place, I turn to the contribution of event structure to argument expression. I draw on the theory of the mapping of event structure to syntax introduced by RH&L (1998). Their basic claim is that argument realization reflects event complexity. Since event complexity does not correlate entirely with the number of participants in an event (see section 3.2), differences in argument realization and behavior are expected among verbs that describe events with the same number of participants. In section 4 I argue that

this prediction of RH&L's account is relevant to understanding the CTV/NCTV distinction.

As discussed in section 3.2, two-argument verbs with simple event structures and two-argument verbs with complex event structures differ as to whether one or both of the participants associated with their constant are structure participants and, concomitantly, as to whether these verbs do or do not have a pure constant participant. As a consequence, one might expect differences in the behavior of the nonactor participant of the two types of verbs, reflecting its different status. In fact, RH&L (1998) propose that there are differences in behavior between two-argument verbs associated with simple and complex event structures and that these differences can be traced back to the differing event structures. To make this point, RH&L contrast two classes of transitive verbs differing as to nature of their second argument. These classes have already figured in the discussion of event structure: lexically simple verbs of change of state (e.g. *break, dry, melt, open*) and verbs of surface contact and motion (e.g. *wipe, rub, scrub, sweep*). Verbs of change of state are causative verbs with complex event structures and two structure participants. Verbs of surface contact and motion are two-argument activity verbs with simple event structures with a structure participant and a pure constant participant.

Verbs of surface contact and motion show more argument expression options than verbs of change of state (RH&L 1998).<sup>12</sup> Verbs of surface contact and motion allow unspecified objects without recourse to generic or repetitive contexts, change of state verbs do not, as shown in (16). Verbs of surface contact and motion take other than 'normal' objects, change of state verbs do not; these include various types of nonsubcategorized objects, as shown in (17)-(18), including the nonsubcategorized objects characteristic of resultatives.

- (16) a. Leslie swept/scrubbed (the floor) this morning.  
b. \* Kelly broke again tonight when she did the dishes.
- (17) a. Leslie wiped the cloth over the table.  
(MEANS 'Leslie wiped the table';  
cf. Leslie wiped the table with the cloth.)  
b. Kelly broke the stick over the fence.  
(CANNOT MEAN: 'Kelly broke the fence')
- (18) a. The child rubbed the tiredness out of his eyes.  
Cinderella scrubbed her hands raw.  
b. \* The clumsy child broke the beauty out of the vase.  
\* The clumsy child broke his knuckles raw.

To explain these differences, RH&L (1998) propose that argument realization reflects event complexity, an idea also proposed in the work of Grimshaw

& Vikner 1993, van Hout 1996, and Kaufmann & Wunderlich 1998. Specifically, RH&L (1998:113, (25a)) propose the following principle governing the event structure-to-syntax mapping.<sup>13</sup>

(19) THE STRUCTURE PARTICIPANT CONDITION: There must be an argument XP in the syntax for each structure participant in the event structure.

Since activities and semelfactives are associated with a simple event structure with only one structure participant, they need only express this argument. Thus, two-argument activity and semelfactive verbs can leave one argument unexpressed—the pure constant argument—without violating the Structure Participant Condition. Thus, these verbs are found with unspecified objects; for the same reason, other than ‘normal’ objects are permitted with these verbs. In contrast, change of state verbs are associated with a complex event structure with two structure participants, so that they must express both these participants in the syntax by the Structure Participant Condition. As a result, they are not found with unspecified objects and their object choice is fixed. Their object must be the argument that realizes the participant in the second subevent—the argument that denotes the entity that changes state. Thus, differences in event complexity and argument status underlie observed differences in the behavior of verbs of surface contact and motion and verbs of change of state and, more generally, verbs with simple and complex event structures, as further discussed in L&RH 1999.

#### **4. The CTV/NCTV distinction revisited**

In this section I show that the discussion of verb meaning, event structure, and argument licensing in the previous section provides a productive context for revisiting the CTV/NCTV distinction. Given the semantic characterization used to define the class of English CTVs, it is clear that they coincide with the set of verbs having a causative event structure, and I propose that CTVs have a complex, causative event structure. In contrast, I propose that English NCTVs are two-argument verbs with a simple event structure. In fact, the verbs cited in section 3 as having simple event structures are activity and semelfactive verbs—not causative verbs—and thus are not CTVs. In section 4.1 I show how the difference between CTVs and NCTVs with respect to the semantic characterization of their objects follows from their different event structures. This discussion sets the stage for an examination of the source of the distinguishing properties involving argument expression in section 4.2. Since my goal is simply to establish these points, I do not attempt to offer an exhaustive and systematic survey of the various types of English NCTVs. As in the earlier part of the paper, my focus is on English, but I hypothesize that these event structure differences carry over to the CTVs and NCTVs of other languages.

Before continuing let me elaborate further on what is crucial for explaining the properties of NCTVs: that NCTVs have a simple event structure associated

with two participants—a structure participant and a pure constant participant—and not that their event structure be precisely the activity event structure in (6a). It is the presence of a pure constant participant that will be shown to be the key to differentiating CTVs and NCTVs. In fact, an examination of English NCTVs shows that besides activity and semelfactive verbs, they include stative verbs. The English NCTVs that qualify as two-argument statives include many verbs of psychological state with experiencer-subjects, such as *adore*, *detest*, and *love*. The same kind of reasoning used to argue that the two-argument activity verb *sweep* has a pure constant participant could be extended to argue that two-argument stative verbs have a pure constant participant (DiDesidero 1999). As mentioned in section 3.1, it seems unlikely that stative verbs would have the same event structure template as activities and semelfactives; however, further investigations of simple event verbs is left for future work. All that matters is that NCTVs are taken to be two-argument verbs with a simple event structure.

#### 4.1. The diversity and identifiability of object semantic roles

Since CTVs have a complex, causative event structure, both their arguments are structure arguments. The objects of these verbs, then, realize the structure participant of the second subevent of a causative event structure (see (7)), and a unified characterization of these objects is possible, as they all realize a particular event structure position. Assuming that semantic roles are labels for arguments that have a uniform semantic relation to their verb, characterizable, for instance, by being associated with a particular position in an event structure (see Jackendoff 1972), the objects of these verbs could be said to have the same semantic role. In fact, the arguments that are picked out by this description represent the core instances of the role most commonly labelled ‘patient’ or ‘theme’.

NCTVs are two-argument verbs with a simple event structure. Consequently, one of their arguments—the one expressed as the object—realizes a pure constant participant, and it cannot be characterized purely in terms of the event structure template. I suggest, following Grimshaw 1993, that the difficulty in identifying a semantic role for such objects stems from their lack of an event structure template characterization. The diversity of semantic relations that such objects can bear to their verbs also follows: the semantic relation such an object bears to its verb is dependent on the nature of the associated constant, and given that constants represent what is idiosyncratic to a verb’s meaning, there is no reason that these relations need fall into a small set of types. Nevertheless, there is also no reason that each of these relations needs to be unique. Some types of relations that pure constant arguments can bear to their verbs might occur with more than one verb. The reason is that there might be sets of related constants—for example, the set of constants associated with the diverse verbs of hitting—which give rise to semantically coherent classes of verbs.<sup>14</sup> Concomitantly, the pure constant participants associated with

these similar constants would all bear the same semantic relation to their verbs. As a result, the objects that realize these pure constant participants might appear to share something that looks like a rather narrowly-defined semantic role. For instance, the objects of the verbs of authority, ruling, or disposition discussed in section 1 would form such a class, as would the objects of the verbs of surface contact and motion discussed in section 3. Such classes of constant participants, however, have no status with respect to the event structure templates, and if this is what matters for the perception of a semantic role, then these verbs will not have objects with easily characterizable semantic roles.<sup>15</sup> In fact, noone has seriously proposed that objects of such verbs represent a semantic role.

This study suggests a source for the perennial difficulties encountered by those who try to define a small, viable, and comprehensive set of semantic roles. It suggests that the notion of semantic role label is well defined for structure arguments only. Not every argument can receive such a label since not all arguments are structure arguments—there are pure constant arguments. A reexamination of the data in section 1 suggests that it is precisely pure constant arguments that resist a ready characterization at the level of granularity that makes for effective semantic roles.

#### **4.2. The variability of argument expression**

In this paper I have assumed that certain event structure participants are realized as objects, but a theory of linking is needed to account for why certain event structure participants are expressed as subjects, others as objects, and others as obliques. Furthermore, as shown in section 1 a major difference between CTVs and NCTVs involves argument expression options, with the latter verbs, unlike the former, showing variability in transitivity across languages. The observed crosslinguistic differences can now be recast, given the proposed correspondences between complex event structures and CTVs and between simple event structures and NCTVs. Causative events, which have only structure participants, are expressed by transitive verbs, while two-argument simple events, which have one structure and one pure constant participant, are expressed by both transitive and intransitive verbs. Furthermore, verbs describing causative events express their participants uniformly across languages, while the variable transitivity of verbs describing simple events must be attributed to the expression of the pure constant participant, which receives more than one realization. Although I cannot provide a comprehensive theory of linking, I make a proposal about how the structure and pure constant participant distinction might figure in such a theory and then show how this proposal can account for the crosslinguistic variability in the expression of pure constant participants.

I propose that the difference in variability of argument expression involves the scope of linking rules, with structure participants, but not pure constant participants, necessarily falling under universal linking rules. It seems plausible that

the universal part of a theory of linking, whatever its details, would operate over structure participants, which have their source in the event structure templates. In contrast, pure constant participants cannot be characterized in terms of event structure templates, making all-encompassing generalizations difficult, and they would fall outside the purview of the major linking rules. I propose that pure constant participants may have their expression determined by language-particular rules that can make reference to properties of the constants which license these participants and thus can pick out the participants themselves. In the absence of such rules, pure constant participants fall under a universal default linking rule. If this hypothesis is correct, the interaction of these two types of rules could be used to account for the variability in the expression of the nonactor argument of NCTVs, as I now elaborate.

I assume that a theory of linking includes rules that specify how the participants in an event structure are realized in the syntax. These rules would be defined over the event structure, and they would associate structure participants with grammatical relations, with the actual realization of an argument bearing a particular grammatical relation being determined by a language's choice of morphological case system. The linking rules could refer directly to positions in the event structures, as in L&RH 1995, or they could refer to these positions indirectly by being stated in terms of hierarchical notions defined over the configurational structure implicit in an event structure, as in Grimshaw 1990, Jackendoff 1990, among others. I do not choose between these two options, but see L&RH 1996 for discussion. However the linking rules are stated, they will apply uniformly to CTVs since all CTVs share the same event structure. For instance, adopting a theory in which linking rules make direct reference to positions in event structure, there would be a linking rule specifying that the structure participant 'y' in the causative event structure, given in (7) and repeated below, is realized as the verb's object.

(20) [ [ x ACT<sub><MANNER></sub> ] CAUSE [ BECOME [ y <STATE> ] ] ]

As all CTVs share this event structure, their objects have their source in the same event structure position and would be expected to have a uniform semantics and shared behavioral properties.

Why, then, do pure constant arguments show more than one potential realization in English and across languages? I propose that the distinct expressions of pure constant participants could be attributed to the interaction of a default linking rule and language-specific oblique linking rules that single out particular sets of pure constant participants or even individual pure constant participants. As noted in section 4.1, some NCTVs might have constants that are similar enough to constitute a natural class, and some languages might choose to allow the related pure constant participants to have a uniform realization as some specified kind of oblique. This situation would be behind the use of the instrumental case in the expression of the nonactor argument of Russian verbs of governing, authority, and disposition (see

section 1). Oblique linking rules, then, would pick out sets of pure constant participants based on semantic subregularities and specify their expression.

However, the fact that in English a large number of NCTVs are found among the transitive verbs means that oblique linking rules are not available for all NCTVs. I propose that in the absence of an applicable oblique linking rule, the expression of the nonactor argument is determined by a default linking rule. The theory of linking proposed by L&RH (1995) includes such a rule, which states that an argument of a verb that does not fall under the scope of any of the other linking rules is expressed as its object. I propose that this rule accounts for the expression as objects of certain pure constant participants of two-argument verbs with simple event structures. However, where they are applicable, oblique linking rules, being more specific, would take precedence over the default linking rule (cf. Kiparsky's Elsewhere Condition).<sup>16</sup> I am assuming that all languages would have a default linking rule available, but this matter requires further study.

The differences in the attested sets of NCTVs across languages illustrated in section 1 suggest that languages vary as to which and how many semantic subclasses of the NCTVs come under oblique linking rules, and thus they differ as to the number and nature of the oblique rules they have available. As a result, some English NCTVs have translation equivalents in a second language that are not transitive verbs but rather are intransitive verbs taking oblique complements because verbs with the relevant meaning fall under oblique linking rules in this other language but under the default rule of English. This situation arises with verbs of authority, ruling, and disposition, which take objects in English, but take instrumental complements in Russian. The fact that so many NCTVs take objects in English would presumably reflect either a paucity of oblique linking rules or a set of oblique linking rules with very narrow scope. An investigation of the relations between a language's case or preposition system and the scope and nature of its oblique linking rules is clearly one of the many topics for further research that this perspective on the linking of pure constant arguments raises.

I conclude this section by considering one additional open question briefly: Are some two-argument simple events more likely to be expressed by NCTVs than others? Tsunoda's (1985) study of the crosslinguistic expression of the arguments of two-argument verbs suggests that some two-argument simple event verbs are indeed more likely to be transitive than others across languages. Tsunoda surveys nine types of verbs (seven classes, two of which have two subclasses) and ranks them according to how likely they are to be transitive in his sample of ten languages. Not unexpectedly, the verbs that fit the CTV semantic profile are transitive in all the languages in his sample, while verbs that diverge from the CTV semantic profile—i.e. from what Croft (1991), DeLancey (1984), Lakoff (1977), and others have called the prototypical model of an ideal transitive event—are not uniformly transitive across the language sample. What is striking is the class whose members are the next most likely to be transitive after the CTVs; these are verbs such as *hit*,

*shoot, kick* and *eat*, which Tsunoda characterizes as involving a direct effect on the patient, but not one with a result.

Tsunoda gives his own characterization of the CTV semantic profile, defining prototypical transitive verbs as ‘verbs which describe an action that not only impinges on the patient but necessarily creates a change in it’ (1985:387). Tsunoda’s characterization highlights that there are two components to the CTV semantic profile: (i) what Croft (1991) has called an asymmetric transmission of force from one entity to a second (i.e. Tsunoda’s ‘impingement on the patient’) and (ii) as Croft (1991:173) puts it, the manifestation of this transmission of force in a change of state in the entity acted upon. CTVs involve both components, while the verbs that are next most likely to be transitive in Tsunoda’s survey—i.e. *hit, shoot, kick*—deviate from the CTV semantic profile in one of these two respects: they involve an asymmetric transmission of force, but there is no necessary change in the entity acted upon. In fact, some studies of transitivity include precisely such verbs in lists of canonical transitive verbs, although investigations such as this one and Tsunoda’s suggest this lumping together is inappropriate. Clearly, the notion of asymmetric transmission of force plays a part in explaining why crosslinguistically some two-argument simple event verbs are more likely to be transitive than others. The verbs in the remaining classes that Tsunoda considers diverge from the CTVs with respect to both components of the CTV semantic profile; these classes include verbs of perception, pursuit, knowledge, and feeling. What Tsunoda’s survey shows is that those two-argument simple event verbs that deviate less from the CTV semantic profile are more likely than verbs that deviate more to fall under the default linking rule, which results in their also being transitive just like CTVs. It suggests that languages resist an oblique rule for pure constant participants of such NCTVs, reserving them for pure constant participants characterizable by notions that do not enter into the CTV profile.

More thorough crosslinguistic studies of two-argument verbs are needed to confirm and explain the tendencies governing which pure constant arguments are most likely to be objects and which are not likely to be. Blume’s (1998) recent study showing the massive crosslinguistic uniformity in the set of verbs taking a second, dative argument is an important step in this direction. In carrying out such studies, it will be particularly important to examine verbs from semantic subclasses that can be used to evaluate the competing semantic determinants that have been proposed in the literature. Most studies to date have not been designed carefully enough to provide data that bears on the choice between competing semantic determinants.

## **5. Conclusion**

As defined at the outset of this paper, CTVs constitute a semantically-defined subset of the transitive verbs of a language; NCTVs also form a subset of the transitive



verbs, but one that apparently lacks a unified semantic characterization. This paper has argued that NCTVs potentially have a unified characterization in event structure terms. I have identified CTVs with verbs having a causative event structure and, thus, two arguments licensed by the event structure template. I have suggested that NCTVs are verbs with a simple event structure, whose object is licensed only by the verb's core meaning. Thus, not all objects have the same status with respect to event structure, and this difference, I have claimed, is reflected in the distinct properties of CTVs and NCTVs. Thus, transitive verbs can realize two fundamentally different types of events.

This study demonstrates that event structure provides a profitable context for the investigation of transitivity. It opens the way for continued examination of two-argument verbs with simple event structures, particularly for an exploration of how language-specific factors might influence the expression of pure constant participants and thus the makeup of the transitive verb class of a language. At the same time, by delineating the class of NCTVs in event structure terms, it lays the groundwork for additional studies of semantic determinants of argument expression.

### Notes

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1. In this paper I use terms such as 'transitive', 'subject', 'object', and 'oblique' pretheoretically but in ways that I hope will be understood. I recognize that none of these terms is simple to define, although ultimately precise definitions are needed.

2. This survey of object behavior raises the question of whether subjects show the same range of semantic roles as objects. Discussions of problems in the characterization of semantic roles tend to be illustrated with objects rather than subjects of transitive verbs probably because subjects of transitive verbs generally do not appear to bear such a wide range of semantic roles. Most commonly, they are agents or experiencers and sometimes they are also instruments or causes. Much of the variety in the semantic roles of subjects is potentially subsumable under a broad notion of agent or causer (e.g. Van Valin & Wilkins' (1996) notion 'effector'). The other source of variability in the semantic roles of subjects is a result of the 'derived' subjects found with some verbs (e.g. *These bricks don't build good houses; Stone-ground flour bakes good bread*); however, this phenomenon is outside the scope of this paper.

3. Besides *ask for* and *demand/request*, there are a variety of other English V + *for* combinations with transitive near-synonyms, including *search for/seek*, *wait for/await*, and *mourn for/bemoan*. Interestingly, their French translation equivalents are all transitive verbs: *demander* 'ask for', *chercher* 'look for', *attendre* 'wait for', *pleurer* 'mourn for'. This observation raises a more general question: just

as there are some English NCTVs which have intransitive translation equivalents in other languages, could there be NCTVs in some languages that have translation equivalents in English which are not transitive verbs? As mentioned above, in order to make this study manageable, I take English transitive verbs as my starting point and focus, and I do not explore this question further.

4. Although aspectual notions have been cited as determinants of argument expression, as most explicitly proposed by Tenny (1992, 1994) in her Aspectual Interface Hypothesis, and they are sometimes used to organize event structure representations, they certainly are not the sole determinants of argument expression. In fact, Tenny herself acknowledges that her hypothesis is not intended to account for all argument expression facts. Although I argue here that for argument expression purposes event structure templates need not represent many of the traditional aspectual classes, there may be other reasons to represent aspectual notions. For instance, they still have a part to play in entailments about the time course of an event.

5. The work of Hay et al. 1999 on degree achievements suggests that the event structure (6c) might be better characterized in a nonaspectual manner as a change of state template, but I leave this question aside since unlike the activity and to a lesser extent the stative event structure templates, the achievement template is not relevant to the topic of this paper.

6. Although it contains a definite object, example (8b) need not receive a telic interpretation; this property is typical of sentences with verbs of surface contact and motion. The availability of an atelic interpretation is brought out by the fact that *Leslie was sweeping the floor* can entail *Leslie has swept the floor* (cf. Dowty 1979, Vendler 1957). In the absence of any context the preferred interpretation of such sentences is the telic one. See Hay et al. 1999 for a discussion of a similar phenomenon with so-called 'degree achievement' verbs.

7. I do not spell out the details of the process that integrates the participants associated with the constant with the variables of the event structure template here, but see Goldberg 1995, particularly Chapter 2, for relevant discussion.

8. This participant does not have a true event structure status on a narrow definition that this requires being specified in the event structure template; if so, it could be argued that this participant should not be represented in the event structure at all. I leave this issue for further research.

9. See L&RH 1995 for arguments that the causative event structure is also associated with the intransitive use of these verbs.

10. Ultimately, there may be empirical evidence that can be used to decide between the two approaches, but its interpretation is not straightforward, requiring a better understanding of the conditions allowing a verb to take an unspecified object. Interestingly, it appears that being found in the resultative construction makes it more likely for a transitive activity or semelfactive verb to be found without its usual direct object. The examples of reflexive resultatives in (13) include transitive verbs that do not readily allow unspecified objects in isolation in nongeneric,

nonhabitual contexts, such as *scrub*, *slam*, and in the intended sense *kick* (??*Sophie scrubbed*, ??*She slammed*, ??*He kicked*). An event structure-based account is more likely than a subcategorization-based account to be amenable to this kind of data as it suggests that there are complex licensing conditions on unspecified objects. If so, the ability to take unspecified objects cannot simply be reduced to an additional subcategorization option.

11. This phenomenon needs further examination to see whether this generalization indeed holds up. There are nonce examples of *out-* attaching to adjectives to create transitive verbs, as in *I looked professional, frugal and trustworthy; I could outbland oatmeal*. (N Pickard, *Generous Death*, Arlington Heights, IL: Dark Harvest, 1984, 63). It is noteworthy is that *outbland* includes the meaning ‘be bland’ rather than ‘become bland’, which is what a regular deadjectival verb would mean (e.g. *dry<sub>v</sub>* means ‘(cause to) become *dry<sub>a</sub>*’).

12. Goldberg (To appear) questions this generalization’s validity, proposing that verbs of change of state can be found heading resultatives with nonsubcategorized NPs—the more general class of resultatives that subsumes reflexive resultatives—and can be used intransitively with unspecified objects. However, as Goldberg herself notes, special licensing contexts—generic or habitual contexts—are needed for resultative and unspecified object uses of verbs of change of state. This property sets them apart from activity and semelfactive verbs, which are not subject to these particular restrictions. L&RH (1999) interpret this difference as supporting their contention that the two types of two-argument verbs are fundamentally different; however, they acknowledge that their account needs to be refined to accommodate this additional data.

13. Given the available event structures, the effect of the Structure Participant Condition is that complex events require two arguments in the syntax and simple events require only one. Thus, the condition reduces to a requirement that there be at least one argument XP in the syntax per subevent in an event structure. In L&RH 1999 and RH&L 1999, this alternative condition, which is referred to as the Argument-Per-Subevent Condition, is introduced instead of the Structure Participant Condition in order to avoid having to define the notions of structure and pure constant arguments, which are not relevant to the larger discussion in these papers.

14. The classes of verbs that arise from having similar constants might correspond to the classes of verbs recognized in Levin 1993. Levin makes many more distinctions among verb classes than a small inventory of event structure templates allows for. The basic properties of the verbs in one of Levin’s classes should be traceable to the relevant event structure template, as shown in the discussion of verbs of change of state and verbs of surface contact and motion in section 3.4. More specific properties, however, might reflect the shared properties of these verbs’ constants and the role of these constants in argument expression. It appears that much of what makes one of Levin’s classes unique is the potential expressions of its members’ arguments, particularly their nonagent and nonpatient arguments—precisely, the type

of arguments that might lend themselves to a pure constant argument analysis.

15. As I pointed out in note 2, objects are open to a much larger range of semantic characterizations than subjects. I propose that this observation follows since subjects, except when nonthematic, always are the realization of structure participants and thus are related to specific event structure positions.

16. Unlike the major linking rules, the oblique linking rules seem to describe strong tendencies and allow for exceptions. For instance, whether the nonactor argument of a two-argument simple event is expressed as an object rather than as an oblique seems sometimes to be a property of an individual verb, as in *await* vs. *wait for*. If so, this would explain why some NCTVs have nontransitive near-synonyms. Further research might show that this facet of the theory of linking, then, involves ranked, violable rules.

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