A Causal Approach to Transitivity

Jinseung Eu

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Abstract

The present thesis presents a causal approach to transitivity and proposes a model of transitivity based on the view that a single event is a single 'causal impact', which consists of a single causation and a single effect. It defines semantic intransitivity as events where the effect is borne by and expressed through the actor and semantic transitivity as events where the effect is borne by and expressed through the patient. It finds evidence for this definition in the phenomenon of 'selective specification' of action or result by verbs with actor and patient. Furthermore, it proposes that the verb eat has dual event structures, intransitive and transitive, and uses a Web data test to test and confirm this hypothesis.

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Introduction

Transitivity is one of the most language-universal notions; however, although syntactic transitivity (or morphosyntactic markings of transitivity) is fairly clearly defined and recognized in world languages, the definition of semantic transitivity is still far from clear (Siewierska 1984: 9), as syntactic transitivity is not always a reliable indicator of semantic transitivity. Especially notable is the clash between the valency-based definition, where two-participant events are transitive and one-participant events intransitive, and multi-feature definition, where valency is but one of the features that determine semantic transitivity, features that include affectedness, volitionality, aspect, and individuation. From the standpoint of iconicity, since syntactic transitivity is valency-based, it would be ideal to define semantic transitivity also in terms of valency. However, a fundamental problem with valency-based definition is the lack of clear and independent criterion for identifying the direct object, or the second participant, and distinguishing it from a range of participants that are otherwise closely associated with the subject, with various degrees of affectedness (Siewierska 1984: 9f). I understand the multi-feature approach as a response to this deficiency: instead of trying to define transitivity in terms of the difference between direct object and non-objects, it proposes to define it with various features of the event while assuming no essential difference among the subject-associated participants (i.e., objects and non-objects).

This thesis upholds the valency-based definition and re-examines the meaning of transitivity and direct object from the viewpoint of causality based on English data. The main proposal is that every verb represents a single **causal impact** (or single causation and effect), and transitivity represents two fundamental modes in which verbs express the single impact. To explain, every event has one effect, and in every event the effect is borne either by the actor (**actor-Bearer** event) or by the patient (**patient-Bearer** event); the actor-Bearer events are semantically intransitive, and patient-Bearer events are semantically transitive. The implication of this for valency is as follows: The only participants that matter to transitivity, to be called 'transitivity participants', are those that cause the effect (Causer) and those that bear the effect (Bearer). Actor is always the Causer. In actor-Bearer events the actor is both

the Causer and Bearer (realized as subject), and thus these events have one transitivity participant; in patient-Bearer events the actor is the Causer and the patient the Bearer (realized as subject and object), and thus these events have two transitivity participants. The distinction between direct object and non-direct object, then, is a matter of ascertaining whether the given subject-associated participant is a transitivity participant or not. I would like to call the theory presented here **single-impact model of transitivity**. I will use the term **unary** to refer to semantic intransitives and **binary** to refer to semantic transitives.

Chapter 1 introduces the multi-feature approach and examines its problems, to show that the proposed non-valency features cannot define transitivity. Chapter 2 presents arguments and evidence for the claim that every verb represents a single causal impact. It is indisputable that every verb expresses a single event, just as every noun expresses a single, individual object. The question, then, is how we identify single events, and whether it may contain more than one causal impact. According to Croft (1991), we identify a single event as a single segment of the causal chain, where a single cause produces a single effect on a single entity, and I call this 'single impact'. Chapter 2 finds evidence for the view of events as single impacts in the phenomenon where actor-patient verbs selectively specify either the actor's action or the result (affectedness of the patient), which divides them into 'noncausatives' (*sweep, hit*) and 'causatives' (*break, kill*): their selective specification is taken as evidence that they select only the action or the result as the effect of the event represented by the verb. In addition, the chapter identifies a group of verbs that specify both the action and result, for instance, *eat, drink, write,* and *knit*, and names them 'semi-causatives'. It is hypothesized that semi-causatives do not simultaneously express two effects (action and result) but have two alternative event structures, one selecting the action, and the other the result, as the effect.

Chapter 3 begins by examining existing approaches to transitivity that are in line with the view of events as single impacts: Croft and Kemmer. The core of the theories is that the building blocks of the single event (or event structure) are Initiator, Patient, and effect (state/location), and unary verbs have Initiator and patient realized in the same participant (subject), while binary verbs have them realized in two distinct participants (subject and object). Thus, in unaries the Initiator acts upon itself to bring the effect upon itself, as in *sing, run, smile, dance*, *jump,* and *turn*; while in binaries the Initiator acts upon an external Patient,

as in *throw, kill*, *cut,* and *preserve* (when a binary subject acts upon itself as in *He killed himself*, the self, realized as reflexive object, is considered external to the subject (cf. **He ran himself*)).

The next sections present a new formulation of event structure and the single-impact model of transitivity, using an algebraic notation that is simpler and more convenient than Croft's causal chain and replacing the terms *Initiator* and *Patient* respectively with (Effect) **Causer** and (Effect) **Bearer**. Especially, the new formulation improves on Croft's causal chain in the treatment of the state/location as the third component of the event structure—by introducing the notion of **SMP** (state maker participant), which ensures that the state/location does not represent an effect in addition to the single effect of the event. SMPs are patients or nonpatients standing in relation to a Bearer (actor or patient); unlike the patients that are Bearers, SMPs do not bear the effect of the event but define the state of the Bearer, which in turn defines the effect. Bearers are realized as direct objects, while SMPs are realized as objects (which I suggest should be called 'SMP objects') or obliques. Now, in the single-impact model of transitivity what determines the transitivity of a verb is its **effect orientation**, or how it expresses its single effect: unary verbs express it through the actor, representing actor-Bearer events, and binary verbs express it through the patient, representing patient-Bearer events. The subject-associated participants in unaries (i.e., non-direct objects) differ fundamentally from the direct objects because they do not bear and express the single effect but merely define the state of the Bearer as SMPs.

Therefore, success in establishing the difference between unaries and binaries, and that between direct objects and non-direct objects, in terms of single impact lies in showing that the actor bears the effect in unaries and the patient bears it in binaries, and making clear what it means for the effect to be borne by (or expressed through) the actor and by the patient. For this, the chapter revisits the phenomenon of selective specification discussed in chapter 2. Noncausatives specify the actor's action and are aligned with core intransitives (unaries), and this is taken as evidence that noncausatives, just like core intransitives, select and express the actor's action as the effect, taking the actor as the Bearer; by contrast, causatives specify the result, which is the affectedness of the patient, and this is taken as evidence that they select and express the patient's affectedness as the effect, taking the patient as the Bearer. The chapter explores behavioral and semantic similarities between

patient SMPs in noncausatives and nonpatient SMPs in core intransitives and their distinction from Bearers in causatives. Finally, the chapter discusses problems posed by the phenomenon of selective specification for the multi-feature approach.

Turning to chapter 4, the preceding chapter has identified object omission in noncausatives as the most representative behavior that distinguishes noncausatives from causatives. Object omission is a prominent topic in linguistic discourse, and chapter 4 examines perspectives on what object omission is and how it occurs to verify the view that object omission marks the noncausatives' (including semi-causatives) similarity with core intransitives and their difference from causatives. An analysis of Goldberg's (2001) notion of 'action emphasis' as a device to impose actor-Bearer construal upon events suggests that the actor-Bearer structure is necessary for making the object omissible (optional). The chapter concludes that the omissibility of the object is determined by the event structure, the unary (actor-Bearer) structure (noncausative) having an omissible object and the binary (patient-Bearer) structure (causative) an obligatory object; while its actual omission is determined by the discourse—that is, by the topicality of the object and information requirement specific to the given discourse. Meanwhile, the notion of action emphasis lays the ground for the 'Web data test' undertaken in chapter 5 by providing a means to coin test phrases in a way to fix actor-Bearer construal of events.

The aim of the data test undertaken in chapter 5 is to test, with Web data for the verb *eat*, the hypothesis proposed in chapter 2 that semi-causatives have dual event structures—unary and binary. By manipulating the test phrases headed by *eat*, the test creates 'controlled contexts' that vary in the relative strength of the two (actor-Bearer and patient-Bearer) effect orientations and observes the behavior of the verb in these contexts in terms of the frequencies of the test phrases. The test identifies clear patterns whose explanation requires the postulation of two distinct event structures of *eat*. The thesis concludes with a summary of arguments and a suggestion for future research based on the single-impact model of transitivity.

1 A multi-feature approach to transitivity

1.1 The rise of the multi-feature approach

The literal meaning of *transitivity* ('transitive') is that "an activity is 'carried-over' or 'transferred'" between two participants, typically "from an agent to a patient" (Hopper and Thompson 1980: 251). Hence, across languages, syntactic transitivity is defined in terms of the number of "syntactically privileged arguments" (Naess 2007: 6; Siewierska 1984: 9f)—two-argument clauses are transitive, and one-argument clauses intransitive—and accordingly, semantic transitivity has been traditionally understood in terms of the number of core (obligatory) participants (Jespersen 1927: 319; Quirk et al. 1985; Kemmer 1994; Naess 2007: 6; Dixon 1979: 102; Halliday 1967: 39; Chomsky 1966: 45; Chomsky 1965: 71; Siewierska 1984: 9f; Perlmutter & Postal 1983; Lyons 1977: 486). This valency-based meaning of transitivity is confirmed by the fact that across languages, two-participant events with a highly affected patient and highly volitional agent are universally encoded with clear two-argument morphosyntax (Tsunoda 1985: 388; Naess 2007: 6; Hopper & Thompson 1980; Croft 1990: 52). They are considered the prototypical instances of transitivity and "reference point for crosslinguistic comparisons in studies of transitivity" (Levin 1999: 226; Dixon 1979; Siewierska 1984: 14), and have been characterized by terms such as 'ideal transitive event' (DeLancey 1984; Croft 1991; Lakoff 1977; Lyons 1968: 359) and 'prototypically/core/primary transitive verbs' (Levin 1999: 23; Andrews 1985; Givón 1984).

However, the valency-based definition suffers from the difficulty of consistently identifying the second participant, that is, the direct object:

> Those who do attempt to present a definition usually provide something along the following lines. A transitive verb is a verb which takes a direct object and an intransitive verb a verb which does not. When asked what is a direct object they most probably will say that it is an object of a transitive verb. Linguists who use some form of this definition sometimes supplement it with semantic criteria, for instance, that the verb must express a genuine action that passes over from the subject to the direct object. In addition the direct object may be said to be the NP the referent of which is somehow affected (often physically) as a consequence of the action expressed by the verb. Despite the obvious circularity of all of these

> arguments, this is the most widely accepted definition of transitivity (Siewierska 1984: 9).

None of the proposed "semantic criteria" has been clear enough to independently identify the direct object in all cases among the participants that are closely associated with the subject (to be called **subject-associated participants**) and variously realized in objects (overt or omitted), obliques, or clauses (finite or nonfinite). Further undermining the valency-based definition is the observation that many seemingly two-participant events with lower degrees of agency and affectedness do not receive a uniform transitive coding within and across languages, some being expressed in transitive clauses and some in intransitive clauses (Hopper and Thompson 1980; Tsunoda 1985: 388; Croft 1990: 52).

The tendency for high degrees of features such as agency and affectedness to correlate with transitivity codings and for low degrees of them to correlate with intransitivity codings has led many linguists to suppose that semantic transitivity is not defined by valency alone but also by these features (Hopper & Thompson 1982: 4; DeLancey 1987: 57-8). I would like to call the features that are believed to define transitivity **transitivity features**. HT (Hopper and Thompson) (1980) have set out to identify transitivity features crosslinguistically and listed them as values along ten 'transitivity parameters', which will be called **HT features**. I list them below in my own grouping (Hollmann (2006: 201) puts them into four groups):

HT features (Hopper & Thompson 1980: 262)

Transitivity parameters	**High transitivity**	**Low transitivity**
Arity		
A. PARTICIPANTS	2 or more participants (A and O)	1 participant
Affectedness		
B. KINESIS	action	non-action
I. AFFECTEDNESS	O totally affected	O not affected
Agency		
E. VOLITIONALITY	volitional	non-volitional
H. AGENCY	A high in potency	A low in potency
Aspect		
C. ASPECT	telic	atelic
D. PUNCTUALITY	punctual	non-punctual
Individuation		
J. INDIVIDUATION	O highly individuated	O non-individuated
Mode		
G. MODE	realis	irrealis

F. AFFIRMATION affirmative negative

The HT features may not all be present in a given clause (Ibid: 255); however, explain HT, "the more features a clause has in the 'high' column in A-J, the more Transitive it is—the closer it is to CARDINAL Transitivity" (253). Hence, since valency is not the sole determiner of transitivity, "a sentence with two participants may rate lower than one with a single participant" on the "transitivity continuum" if it has many low-transitivity features, although they acknowledge that this is a "less comfortable consequence" (254; see also 265; DeLancey 1987: 57):

> Consequently, the presence of an overt O is only one feature of a Transitive clause; it co-exists with other **defining properties** (such as Agency, Kinesis etc.) [my bold]. And just as a clause may have an overt second participant, and still be aligned with the intransitive clause, so also it may lack a second participant, and yet have Transitive features (266).

Furthermore, in their "Transitivity Hypothesis", they say that these features strongly tend to co-occur; that is, a clause that is highly transitive on one parameter is likely to be so on the other parameters as well (255). This makes clear that HT understand transitivity as a prototype category, whose prototype ("CARDINAL Transitivity") is defined as a cluster of the multiple, high-transitivity features. In fact, the prototypicality of transitivity is necessary to accommodate their notion of transitivity as a continuum. Indeed, transitivity, like most linguistic categories, is generally understood as a prototype category (DeLancey 1987; Kittila 2002; Naess 2009; Levin 1999; Lakoff 1977; Tsunoda 1999: 2). But the question is whether this multi-feature approach to transitivity squares with the nature of prototypes. In section 1.3 we will show that the high-transitivity features violate the essential requirements of the prototype features.

1.2 What is transitivity?

The most obvious problem with the multi-feature approach is that it is not clear what these features mean as a whole, or why these features come together to define transitivity. HT themselves profess themselves unable to find the unifying notion of transitivity:

> It is tempting to try to find a superordinate semantic notion which will include all

> the Transitivity components. If there is one, it has so far not been discovered; terms such as 'activity', 'intensity', and others which we have considered all fail to capture the essence of the relationship among these components (1980: 280).

For Naess, such a notion is needed because just listing a set of features does not tell us what transitivity is:

> Furthermore, listing a set of properties as characteristic of particular construction still leaves open the question of "what transitivity is" in the sense of why this particular set of properties correlate and are associated with this particular kind of structure (2007: 3).

The problem is especially serious because different linguists list different sets of transitivity features, and there seems to be no principled way of establishing the standard set of transitivity features. For instance, Hollmann (2006) adds 'directedness', 'sphere of control', etc., while Tsunoda claims that only affectedness should be accepted as a transitivity feature (see also Langacker 2008; Givón 1990: 565; Dixon 2009: 142). Without first agreeing on the list of transitivity features, a multi-feature approach cannot even begin to ponder the question, "What is transitivity?"

Perhaps as an attempt to address this flaw, HT (1980) later in the paper discuss transitivity in terms of 'pragmatic function' in the discourse:

> In other words, we assume that a linguistic universal originates in a general pragmatic function, and that the universal is not explained until this function has been isolated and related to the universal. Without the connection to a communicative function, the separate components of the Transitivity relationship have only an arbitrary relationship to each other; we lack a reason why these semantic-grammatical components, rather than others, should be selected (HT 1980: 280).

Their claim and empirical finding are that transitives and intransitives have a strong tendency to occur in the foreground and background portions of discourse respectively. Are they then proposing to use foregrounding and backgrounding functions to define transitivity and intransitivity respectively? However, where transitives and intransitives tend to occur more frequently does not necessarily provide their definition. Furthermore, defining transitivity in terms of discourse function is to reduce transitivity into a rhetorical device: are they two different means of encoding the same message for foreground and background uses? Do we take a transitive clause and turn it into intransitive if we want to put it in the

background? HT do not show how such an operation is carried out. More fundamentally, the discourse definition contradicts the fact that transitivity is largely a verb-specific, rather than discourse-specific phenomenon, with most verbs keeping their transitivity across foreground and background.

1.3 Transitivity features as prototype features

1.3.1 The requirement of commonality

For Rosch (1978: 192), the prototype features, or the features that define the prototype of a category, are "common attributes", in the sense that each of them is "common to all or most members of the category". This is a natural consequence of the fact that categories "mirror the structure of attributes perceived in the world", a structure that consists of "clusters of attributes" (191, 196-8). In other words, each attribute cluster gives rise to a category, and thus most, if not all, of the individuals included in the category embody all the attributes that constitute the cluster, or the common attributes (see also Taylor 2003: 54, 56). Thus, Prinz (2008: 2) identifies the bird prototype as "a beak, wings, feathers, flight, and two taloned legs" and says, "most birds have them". Geeraerts (1988: 215f; 1997: 168f) determines the prototypes of the Dutch verbs *vernietigen* and *vernielen* by establishing that within the uses of each verb the uses that represent the proposed prototype form a dominant part (see also Eu 2009: 464f for a similar maneuver based on Web data).

The high-transitivity features, however, are not common attributes because they, as a whole, are not shared by most of the members of transitivity (i.e., the transitively-coded clauses); rather, the two-participant, telic/punctual, and realis/affirmative clauses with highly agentive A and highly affected and individuated O, which are the instances of the CARDINAL Transitivity, can only account for a small portion of the transitively-coded clauses. Some of the HT features could be dropped to raise the proportion of the cardinal transitivity instances, but then we need a criterion for which ones to drop and which ones to keep, and have "the problem of knowing where to stop" (Aitchison 1987: 60).

1.3.2 The requirement of contrast

Rosch (1978: 197-8) speaks about contrasting categories and prototype features:

> It is important to note that for natural language categories both at the superordinate and basic levels, the extent to which items have attributes common to the category was highly negatively correlated with the extent to which they have attributes belonging to members of contrast categories. This appears to be part of the structure of real-world categories. It may be that such structure is given by the correlated clusters of attributes of the real world. Or such structure may be a result of the human tendency once a contrast exists to define attributes for contrasting categories so that the categories will be maximally distinctive.

Prototype categories are defined by contrast; in other words, the features that are selected as the prototypes of a category are the ones that contrast with the prototype features of its contrasting categories. For instance, all birds are animate, have bones and internal organs, have two eyes, etc., and these features are more fundamental to birds than their prototype features—flying, feather, egg laying, etc. Why is it, then, that only the latter features are selected as bird prototype? Prototype theory explains that this is because only they contrast birds from their contrasting categories like mammals and reptiles, which are also animate, have bones and internal organs, have two eyes, etc. For instance, Medin and Wattenmaker (1987: 28, 35-36) say (see also Mandler 2004: 126; Eu 2009: 464):

> First, properties having high diagnosticity may be active because they are useful in distinguishing instances of a concept from instances of other concepts. ... Thus properties that are necessary for category membership (eg., for birds, having a heart, kidney, and lungs) might never be listed [as prototypes – my note] because they might not be discriminative properties in typical context... For example, they may list “two-legged” for bird but not for robin, eagle, or other specific birds.

Accordingly, the features of the contrasting categories share the same parameters and represent the opposite ends of these parameters, so that they are “maximally distinct” (DeLancey 1987: 57f), and so that “the extent to which items have attributes common to the category” is “negatively correlated with the extent to which they have attributes belonging to members of contrast categories”. This can be illustrated in the case of birds and mammals as follows:

Parameters	**Birds**	**Mammals**
Reproduction	lay eggs	bear live young
Movement	fly	walk and run
Skin type	feathers	fur
Limbs	wings and taloned legs	hands and legs
Mounth	beak	mouth and teeth

If transitivity is a prototype category, intransitivity is its contrasting category, and they must "share one single axis" according to Tsunoda (1999: 8). Thus, if the high-transitivity features define the transitive prototype, the low-transitivity features should define the intransitive prototype, with the clauses with most of the low-transitivity features being most intransitive. First of all, then, the HT features should apply to the one-participant clauses and make the ones with most low-transitivity features most intransitive (Hopper & Thompson 1980: 265-6). Naess (2007: 23; see also 27) explains this as follows:

> ... categories are defined in relation to opposing categories in the same domain. That is, it is a crucial property of the definition of a prototypical transitive clause that such a clause is taken to be maximally distinct from a prototypical intransitive clause; and so any deviation from the transitive prototype must be taken to bring a clause closer to semantic and formal intransitivity.

However, many of these features are not even applicable or relevant to one-participant clauses. First of all, INDIVIDUATION and AFFECTEDNESS cannot be applied to clear one-participant events, such as *run*, *jump*, *sleep*, and *die*, simply because they have no O. Should they be applied to their single participant (S) in this case? This would be an ad hoc fix, and if AFFECTEDNESS and AGENCY are applied to the same S, they will always violate HT's transitivity hypothesis because they vary inversely with each other (highly agentive participants are low in affectedness, and vice versa – Naess 2007: 44). In fact, all HT features are geared to two-participant events, each involving "a different facet of the effectiveness or intensity with which the action is transferred from one participant to another" (Hopper & Thompson 1980: 252); hence, it is no wonder some of them are not applicable to one-participant events.

On the other hand, with the subject-related features such as agency (E, H), if the low-transitivity features define intransitivity, low-agentive events such as *sleep* and *die* should be more intransitive than highly agentive events such as *run* and *jump* (265-6). But there seems to be no ground to support this. Some linguists even hold the opposite view, seeing highly agentive one-participant verbs as prototypical intransitives (Davidse 1998; L&RH 2005: 58; Tsunoda 1985; DeLancey 1987: 61), and Tsunoda (1999: 8) considers the matter unsettled. Likewise, with the rest of the HT features, I am not aware of any research that shows that atelic events are more intransitive than telic events, negative events more intransitive than affirmative events, and so forth. Rather, quite inconsistently, the intransitive prototype is

often defined only in terms of arity (Strugielska 2007; Lakoff 1977: 256). Thus, Tsunoda (1999: 8) states: “while a characterization of the transitive prototype was reasonably straightforward, the matter is really problematic when we attempt to characterize intransitivity”.

1.3.3 The requirement of co-occurrence

Rosch (1978: 190) explains the requirement of co-occurrence (see also Taylor 2003: 52):

> Rather, the material objects of the world are perceived to possess high correlational structure. That is, given a knower who perceives the complex attributes of feathers, fur, and wings, it is an empirical fact provided by the perceived world that wings co-occur with feathers more than with fur.

The prototype features of a category strongly (though not necessarily) tend to co-occur in its members, forming a “correlated cluster of attributes” (198). Co-occurrence is an obvious consequence of commonality: if most of the category members each possess all prototype features, the prototype features must co-occur in each of these members. The transitivity hypothesis affirms the co-occurrence of the high-transitivity features and that of low-transitivity features. However, arity does not seem to co-occur with the other HT features, as there seems to be no reason why one-participant events should be less agentive, atelic, non-punctual, or negative. Furthermore, Tsunoda, who proposes to eliminate all but AFFECTEDNESS from the defining features of transitivity, observes that subject-related features and object-related features do not co-vary as consistently as supposed, and concludes: “the transitivity hypothesis is too strong” (1985: 386; see also Levin 1999: 228; Tsunoda 1999: 4f).

2 Events as single causal impacts

2.1 Event individuation and single impact

> ... most objects come already individuated. The external world spatially isolates

> objects, and objects move or can be manipulated in space as autonomous entities. Thus, a crucial prerequisite for categorization is already satisfied in most cases without any necessary appeal to cognition, other than our mental receptiveness to this external fact. ... Verbs, on the other hand, are a much more difficult problem from the point of view of categorization. Verbs represent a categorization of events. Events do not come clearly individuated in space or time. ... The world appears to be made up of an extremely complex causal network of which we encounter just fragments. Nor can events be physically manipulated, in space or in time, in the way that objects can. Thus, the two basic criteria for individuating objects cannot be used to individuate events. The individuation of events becomes the first problem that must be addressed in this realm of linguistic and cognitive categorization. Because the individuation of events does not 'come naturally', it is likely that there is a strong cognitive element to the individuation of events; that is, the process of isolating a fragment of the causal chain and naming it with a verb involves more cognitive processing than the isolating of an object and naming it with a noun (Croft 1990: 48).

As Croft explains, **event individuation**, in the sense used in linguistics, is a stage in **verb categorization**, a process where a verb's meaning is abstracted from its instances (Croft 1990; Schaefer & Egbokhare 2009; Rosch 1978; Taylor 2003; DeLancey 1987: 55-6). In this thesis the term **categorization** is used in the sense of 'category formation' (Rosch 1975; DeLancey 1987: 59; Rosch 1978), where a word's meaning emerges from its instances through a selection of their essential features. Events are instances of a verb, and event individuation isolates a verb instance out of the undifferentiated continuum of causal interactions in the world for the purpose of verb categorization (see also L&RH 2005: 19, 70; Gentner 2006: 544; Wagner & Carey 2003; Clark 1978). Importantly, categorization occurs not only when new words come into being, but every time we use an existing word. To explain, an entity has a countless number of features and can be referred to by several different words, so before applying a word to an entity, we must know which of its features will be used to choose the word. For instance, a bagel can also be called 'bread', 'food', etc., and a dollar bill can sometimes be called 'paper' depending on which of their features we focus on. In short, we must identify an individual and select its features before referring to it, and this is nothing other than categorization.

If events are artificially individuated rather than naturally given like objects, what demarcates the single event to be named by a single verb? Rosch's work on categorization is based mainly on nouns, and she only pays a very brief attention to verb categorization. She addresses the problem of identifying events as part of verb categorization and proposes

factors such as participants, space, and time as the criteria:

> It should be noted that event boundaries appeared to be marked in a reasonable way by factors such as changes of the actors participating with ego, changes in the objects ego interacts with, changes in place, and changes in the type or rate of activity with an object, and by notable gaps in time between two reported events (1978:44).

However, this is not a very clear and detailed enough explanation of how events are individuated. For instance, are these changes and gaps necessary or sufficient conditions for establishing single events (or setting "event boundaries")? Furthermore, can a single event have any number or type of participants as long as the listed conditions are met? But we know that a verb only has a limited number of arguments. How, then, are their number and kind determined? In the same vein, Croft (1991: 159-60) says that the spatio-temporal criterion of single events "is neither a necessary nor a sufficient condition for defining events". For instance, he argues, "simultaneous co-located events such as a ball spinning and getting hot at the same time or jogger running and sweating at the same time" show that single time and space (or participant) are not sufficient for having a single event (because here in each case we have two distinct events as indicated by the two different verbs, which nevertheless occur at the same time in the same participant). On the other hand, when someone is killed by stabbing, and his death occurs far away from the time and location of the stabbing, the single event of killing involves more than one time and location, as "one does not want to say the killing occurred at either location (or time, for that matter) alone or in a combination of both". This shows that single time and space is not necessary for having a single event. There are even events that cannot be plausibly described as having a location: **Mrs Woodland was widowed in Las Vegas* (Croft 1991: 159), and events whose time span is stretched out indefinitely: *The earth is round* (See also Davidson 1969: 304f).

Croft (1990: 49; 1991: 159-60) invokes Davidson (1969) as providing a basis for understanding single events in terms of causality as opposed to space and time:

> It is a matter of the first importance that we may, and often do, describe actions and events in terms of their causal relations - their causes, their effects or both. My poisoning of the victim must be an action that results in the victim being poisoned; my killing of the victim must be an action that results in the death of the victim; my murdering of the victim must be an action that results in the death of the victim and also an action that was caused, in part, by my desire for the victim's death. If I

> see that the cat is on the mat, my seeing must be caused, in part, by the cat's being on the mat. If I contract Favism, I must contract haemolytic anaemia as a consequence of eating, or otherwise coming in contact with, the Fava bean. And so forth. This tendency to identify events in terms of their causal relations has deep roots .... What I do want to propose is that the causal nexus provides for events a 'comprehensive and continuously usable framework' for the identification and description of events analogous in many ways to the space-time coordinate system for material objects (Davidson 1969: 305-07).

Davidson says that events are individuated within the "framework of causal relations" just as objects are individuated in the spatiotemporal framework. Specifically, his remark that we "identify events in terms of their causal relations" can be taken to mean that within the causal nexus a causal relation comprising a single cause and a single effect ("their cause, their effects, or both") is identified as a single event just as we identify material objects separated in space and/or time as single things.

Croft presents a linguistic approach to events in terms of 'causal chain':

> A verb is defined as denoting a segment of a causal chain—in some sense, a 'single event'. The causal chain represents an idealized cognitive model (ICM) of a single event (Croft 1990: 50).

In the same vein, Langacker (2008: 356; see also 104) says that a single event is "one link" in the sequence of 'action chain'. ICM (ideal cognitive model) is Lakoff's (1987) term essentially identical with 'prototype'. Thus, Croft's point here is that the causal chain shows what a single event is. For Croft, the "causal chain of a single event" consists of a single cause and a single effect on a single participant (Ibid: 51; 1991: 160). I would like to say that a single event, as an instance of a single verb, is a single **causal impact**, or a single application of force by a single cause and its single effect. This view of events has been embraced by other researchers. For instance, Shibatani (2002: 3) says that "maximal event structure lexicalizable as an atomic unit can include at most one agent", and Carlson (1998: 8) says that "verbs express only singular events", by which he means a single cause (see also Wolff 2003; Goldberg 1995: 166).

2.2 Evidence for event as single impact: selective specification in English verbs

2.2.1 Selective specification

English verbs show good evidence for events as single impacts. Suppose a chain of events where one tips a bottle of water and pours it into a cup. This causal chain features three distinct effects on three distinct entities while the human cause remains the same in each: the bottle being tipped, the water being poured, and the cup being filled. Each effect individuates an event, and the three events are represented by the verbs *tip*, *pour*, and *fill* respectively. Importantly, each of these verbs only specifies the relevant effect and leaves the rest of the chain unspecified. For instance, *tip* denotes something tilting, but says nothing about what happens as a result; likewise, *pour* denotes some liquid coming down from somewhere, but is indifferent to how this is achieved and what happens next; and *fill* specifies some container becoming full but not how it becomes full. There is no verb that describes and specifies two or three of these effects. Thus, in a psychological study of affectedness Gropen et. al. (1991) observe that every verb has the "main event", or the effect it describes, and expresses the affected participant ('Effect Bearer' – see 3.2.1), through which the effect is expressed, as the object:

> The verb's object would be linked not to the moving entity but to the argument specified as "affected" or caused to change as the main event in the verb's meaning. ... For example, *pour* specifies how a substance moves (downward in a stream), so its substance argument is the object (*pour the water/*glass*); *fill* specifies how a container changes (from not full to full), so its stationary container argument is the object (*fill the glass/*water*) (Gropen et al. 1991: 154).

To be noted here is the fact a verb's meaning normally includes (or implies) multiple processes occurring in a chain, and yet it selects and expresses only one as the effect. For instance, the event described by *fill* necessarily includes movement of the filling material in some way as well as filling of the container because they occur simultaneously; however, the verb only selects the latter as the effect and expresses it as its main meaning, while merely implying the pouring process as a means to achieve the effect. In other words, just because a verb describes or includes within its meaning multiple processes, it does not mean that it

expresses all of them as the effect. This point will be important especially in our discussion of resultative construction and 'semi-causatives' in the coming subsections.

2.2.2 Causatives vs. noncausatives

This selective specification of the effect (main event) seems to be a general feature of English verbs. For instance, linguists observe that the verbs that take patients ('actor-patient verbs' – see 3.2.1) are divided into 'causatives' (or 'result verbs') and 'noncausatives' (or 'manner verbs') (R. Hovav and Levin 1998; Levin and R. Hovav 2005; Goldberg 2001: 503-4; Kac 1976; Kardos 2010; Croft 1990: 60):

> Causative: *open, break, melt, kill* / Non-causative: *touch, hit, push, grab*
> Each causative has, as part of its meaning, a specification of a well-defined result of some unspecified action; the noncausatives specify a well-defined action with an unspecified—indeed, only potential—result. ... Whereas causatives are vague about the precise nature of the action but specific about the result of the action, noncausatives are precise about the action but completely noncommittal as to the nature of the result of the action. Thus, if we compare, say: (10) a. *Harry killed Fred. / b. Harry hit Fred*. (10a) does not tell us exactly how Harry achieved the result of causing Fred to die, but it does tell us that he did indeed succumb as a consequence of whatever action it was that Harry performed. On the other hand, (10b) is highly specific about exactly what Harry did to Frred, but it says nothing about what the outcome was—as can be seen from the nonvacuity of a sentence such as: (11) *Harry hit Fred, and caused him to die* contrasted to the vacuity of: (12) *Harry killed Fred, and caused him to die* (Kac 1976: 234-5).

I would like to suggest that although both causatives and noncausatives describe an event where an actor affects a patient in some way, causatives specify the result because they select the affectedness of the patient as the effect of the event, and noncausatives specify the action because they select the actor's performance of the action as such. *Tip, pour*, and *fill* are all causatives because they specify the result and not the action that brings it about.

Thus, noncausatives are often aligned with core intransitive verbs ('actor-only verbs' – see 3.2.1), which also specify the action, against causatives. In the following remark R. Hovav and Levin align noncausative *sweep* with core intransitives *whistle* and *run* as 'manner verbs' against 'result verbs' (causatives) (see also Goldberg 2001: 503-4 for alignment of *kick* and *run* against causatives):

> It is striking that the verbs [*sweep, whistle, run*] ... all lexically specify or "lexicalize"

> the manner in which the action denoted by the verb is carried out. These verbs contrast with verbs like *break* and *open* which lexicalize the result of the action denoted by the verb, but not the manner. We therefore refer to verbs like sweep and run as "manner verbs" and to verbs such as break and open as "result verbs." (R. Hovav and Levin 1998: 100)

R. Hovav and Levin further elaborate on the difference between manner and result verbs, adding verbs of location:

> These three verbs [*sweep, rub, wipe*] are distinguished from each other in the manner of surface contact they specify, but none of these verbs, in its most basic use, entails a resulting change in the contacted surface. Thus, although a floor is typically swept in order to remove dirt and debris, a floor that is swept need not end up being clean. Although the hearer will infer that a swept floor is a clean floor because the conventional goal of sweeping is to clean a floor, there is nothing contradictory in saying *Tracy just swept the floor, but there are still crumbs on it*. Verbs of manner of motion such as *run, skip,* and *jog* are distinguished from each other with respect to the manner of motion each specifies; however, no achieved location (a kind of result) is entailed by such verbs unless an explicit goal phrase is added. ... Manner verbs like *sweep, whistle,* and *run* can be compared with result verbs, which lexicalize a particular result, but more often than not are vague as to how the result is achieved. There are two types of result verbs: one type lexicalizes a resulting state and the other a resulting location. A verb of change of state, such as *break, dry,* or *widen,* as the name implies, lexicalizes a particular achieved state, and the verb denotes the bringing about of this state. But though the verb itself denotes the bringing about of this state, it leaves the nature of the causing activity unspecified; that is, such verbs do not lexicalize manner. The verb *clean* also specifies a resulting state, while leaving open how it is achieved. ... Verbs which lexicalize an achieved location are the second type of result verbs. These are verbs of directed motion such as *come, go, arrive*, which lexicalize an achieved location (and usually also a direction), but not a manner of motion (R. Hovav and Levin 1998: 100-102).

Although the location verbs all describe an event where an actor moves in some way and arrives somewhere, the 'verbs of manner of motion' select the movement, and the 'verbs of directed motion' the arrival, as the effect.

2.2.3 Resultative construction

Noncausatives and core intransitives, however, can be 'augmented' with resultatives to specify the result as well as the action (R. Hovav and Levin 1998: 118f; 2001; Goldberg 1995; Goldberg & Jackendoff 2004). For instance:

(1) Phil swept the floor *clean*. (R. Hovav and Levin 1998: 119)
He hit the ball *across the field*. (Goldberg 1995: 170)
The critics laughed the play *off the stage*. (Goldberg and Jackendoff 2004: 536)

In these constructions, does a single verb express two effects? No, my view is that the causative construction turns these verbs into causatives and makes them select only the result as the effect. My first argument for this is that while a verb cannot select an action or result as an effect without specifying what it is, it can specify an action or result without actually selecting it as an effect. Thus, a verb specifying both the action and result does not necessarily make it select both as the effect, and 'semi-causatives', introduced in 2.2.4, provide another case of dual specification with single effect. In resultative constructions, then, the action, although specified, is not seen as an effect but only as a means to bring about the single effect (result).

My second argument starts by noting that the resultative construction only allows the combination of action and result that can be construed as a single impact:

(2) a1. The boat sailed *into the cave*. (Croft 1991: 160)
a2. *The boat burned *into the cave*. (Ibid)
b1. Kim ran/rustled *into the room*. (R. Hovav and Levin 2001: 781)
b2. *Penny fretted/laughed/played *into the room*. (Ibid: 773)

In each pair of (2), the action and the result are (construed as) causally linked in the first sentence, but not in the second sentence. About (a1) Croft (1991: 160) says: "The activity of sailing and the motion into the cave can be combined only because the activity of sailing *causes* the motion to come about". About (b1), R. Hovav and Levin (2001: 781) note that "it is the movement that causes the rustling" (so the rustling cannot cause the movement); however, rustling can represent the movement because it is caused by it, and the sentence is saying that the movement represented by the rustling brought Kim into the room. By contrast, in (a2) burning does not normally cause a movement, and in (b2) actions such as fretting, laughing, and playing do not normally cause someone's movement into a room. Hence, in (a1, b1), the action and result can be construed as a single, seamless effect on the single participant (subject), but they cannot in (a2, b2) because the result requires its own, separate causal force as it is not caused by the action of the subject.

The issue of causal link is involved in the two-participant constructions ((3)a1, a2, a3) as well:

(3) a1. They laughed the poor guy *off the stage/out of the auditorium.* (Goldberg 1995: 173)
a2. #They laughed the poor guy *into his car*. (Ibid)
a3. *He bragged her *to sleep*. (Kay 2005: 89)
b1. *Kelly broke the dishes *off the table*. (R. Hovav and Levin 1998: 112)
b2. Bill broke the bathtub *into pieces*. (Goldberg and Jackendoff 2004: 536)

About (a1, a2), Goldberg (1995: 172) comments: "Under many circumstances, a specific path is not determined by the activity described; the direction of force only implies that the theme argument moves out of, or away from, its present location. Accordingly, more specific paths [*into his car* – my note] cannot be predicated". The laughter can plausibly be a direct reason for the *poor guy* to leave the stage or auditorium, but not for his getting into his car; thus, it cannot be construed as the cause of the result described in (a2). Likewise, in (a3) bragging does not normally cause people to sleep, and thus it cannot be construed as the cause of the result described. Thus, while the result in (a1) can be taken as the result of the action (laughing) and selected as the single effect, the results in (a2, a3) cannot—they have their own cause. On the other hand, in (b1) although the result may well be caused by the action (breaking), it is bad because the verb *break*, as a causative, already expresses an effect on the patient (dishes being broken), and thus the result (dishes going off the table) can only be taken as a second effect on the patient. In other words, the sentence cannot be construed as expressing a single impact. Indeed, it is a general feature of causatives that they cannot be augmented with a resultative phrase, as R. Hovav and Levin (1998: 122) say: "because the template associated with a verb like *break* cannot be augmented further, no other achieved state or location can be added to a sentence with *break*" (see also Goldberg 2001: 504). The phrase *into pieces* in (b2) is acceptable, however, because it only elaborates on the broken state rather than introducing a new effect on the patient; in this sense it is not a true resultative phrase.

In sum, none of the unacceptable action-result combinations above seems to suffer from unclear meaning. Therefore, it seems difficult to explain why the resultative construction allows only some type of combinations and not others without postulating that the acceptable combinations are construed as single impacts.

2.2.4 Semi-causatives

Kardos (2010: 3) adds "verbs of creation (e.g. *cook, write, knit*)" and "verbs of

consumption (e.g. *eat, drink*)" to noncausatives, which he calls 'pseudo-transitive'. On the other hand, Croft (1990: 60) includes these verbs in causatives. I would like to call these verbs **semi-causatives**. The ambivalent status of the semi-causatives seems due to the fact that they specify both the action and result: for instance, *eat* specifies both the eating action and food consumption. Do they, then, express two effects and violate the single effect rule? No, I would like to argue that their dual specification is an inevitable result of the inseparability of the action and result they describe, and they still select the action or result as the single effect.

The action and result are inseparable in these verbs in the sense that i) the action inevitably leads to the result and ii) there is no other way than the action specified by the verb to achieve the result. In *eat*, for instance, it would be difficult to imagine food not being eaten when someone performs an eating action on it, as long as it is proper food; and its eating cannot be achieved by any other means than the eating action. True, food can be inserted through a tube into a sick patient, but this is not a result achieved by eating, which includes the food being chewed up and swallowed (see Kardos 2010: 7). Nevertheless, semi-causatives can select the action or result as the single effect. I propose that semi-causatives have two event structures, a unary ('actor-Bearer' – see 3.2.1) structure selecting the action as the effect, and a binary ('patient-Bearer') structure selecting the result as such. Both structures specify both the action and result. Unary *eat* appears mostly in intransitive use, and binary *eat* always in transitive use. Semi-causatives, then, behave like noncausatives based on the unary structure, and can be aligned with causatives based on their binary structure (see Kardos 2010: 12).

Some linguists have observed the action-selecting (actor-Bearer) characteristic of unary *eat*. Song (2009: 197) notes that in speeches such as *John is eating/drinking* "the focus is placed on eating or drinking as an activity, not on what was done to the thing eaten or drunk" (see also Wierzbicka 2009: 71). Since semi-causatives specify both action and result, however, evidence for their dual event structure must be found some other way than in selective specification. The Web data test presented in chapter 5 is employed for this purpose.

2.3 Single impact and dependent agents

A single event, or single matrix verb, can of course include multiple impacts when they are embedded as clauses in the sentence, as a subject ((4)a), as an object (b), as 'SMP' (see 3.2.1) (c, d), or as various modifier clauses (e). Embedded clauses do not change the fact the single event is a single impact because each event, represented by one matrix verb, has only one main cause (subject of matrix verb) and one main effect (effect of the event), and although embedded clauses may mark, define, or modify the main effect, it is the main cause alone that produces the main effect. For instance, in (d), the main effect is not John's going, because the sentence "does not commit the speaker to the belief that John's going occurred after his telling him to do so" (Shibatani 1976: 1), but rather John's getting the message to go (or more technically, John's being put in the state of reception: see 3.2.1). This effect is produced solely by the subject ("I").

(4) a. *The fact that you are here* makes me happy nonetheless. (Google)
b. She found out *she was pregnant*. (Google).
c. I tried *to find you*.
d. I told John *to go*. (Shibatani 1976: 1)
e. I came *to say goodbye*. (Google)

However, there are cases where the production of the effect in an event seems to involve two distinct causes, challenging the single-impact view of an event. Examples (5) each feature two agents: the main agent (subject) and the second agent (*him, Bill, child*), the initiator of the subordinate action. The second agents, however, are seen as causally influenced by the main agent, and I would like to call such agents **dependent agents**. Importantly, in these examples the effects are *him* walking in (a), Bill standing up in (b), and the child standing up in (c); here the dependent agents play a part in bringing about these effects. Does this mean that here a single event expressed by a single matrix verb consists of two distinct impacts, with two distinct causes, constituting counterexamples to the present theory?

(5) a. She made him *walk*.
b. John got Bill to *stand up*. (Shibatani 1976: 32)
c. John had the child *stand up*. (Ibid)

Events with a dependent (or 'intervening') agent are termed **indirect causation** or

'directive causation', while events without one are termed **direct causation** or 'manipulative causation' (Cruse 1972: 524; Goldberg 1995: 166f; Shibatani 1976: 31; Talmy 2000: 503f; Verhagen & Kemmer 1997: 67; Croft 1991: 154; Kac 1976; L&RH 1994; Wolff 2003). The indirect causations in (6) cannot be described by lexical (single-clause) causative sentences but only by periphrastic (two-clause) causatives as in (5). Some linguists take this as evidence that language treats indirect causation as a series of two separate events, or a case of two non-embedded impacts within an event (Wolff 2003: 3, 7; see Goldberg 1995: 166 for 'the principle of one event per cause').

(6) a. *She walked him.
b. ?The rider jumped the horse. (Levin and R. Hovav 1994: 40)
c. *The parents played the children. (cf. The parents made the children play.) (Ibid)
d. *The director spoke the actor. (cf. The director made the actor speak.) (Ibid)

However, there is also evidence that language does not necessarily distinguish between direct and indirect causations, and dependent agents are not seen as representing a separate impact. The clearest evidence for this is caused-motion constructions with agentive objects, where lexical causatives express indirect causation:

(7) a. She walked him *home*.
b. The rider jumped the horse *over the fence*. (Levin and R. Hovav 1994: 39)
c. The company flew her *to Chicago* for an interview. (Goldberg 1995:169)

Levin and R. Hovav (1994) say that here lexical causatives are acceptable with indirect causation because of the path phrase, and explain why it makes them acceptable by saying, based on deep-structure semantics, that the path phrase turns the verb into an unaccusative verb (see Narasimhan et al. 1996: for arguments against this explanation). But in R. Hovav and Levin (2001: 766) they retract this type of explanation, which leaves cases like (7) unexplained. It seems, however, that there is a simple semantic explanation. The reason the pathless lexical causatives in (6) are infelicitous is not that the causation is indirect but simply that they do not support a clear interpretation: lexical causatives have a sense of direct control and manipulation (Cruse 1972; Shibatani 1976), and it is not clear what it means to directly control a person to walk, for instance—is the person turned into a zombie? On the other hand, periphrastic causatives like *make him walk* does not necessarily imply such a direct control (Babcock 1972; Cruse 1972; Shibatani 1976) and consequently support

the interpretation that he walked of his free will although under the subject's influence. The reason the lexical causatives in (7) are acceptable, then, is simply that the path phrases provide clues for clearly interpreting them, overriding the direct control sense of lexical causatives.

This means that even pathless lexical causatives encoding indirect causation should be acceptable as long as they have a clear meaning that overrides the direct control sense:

(8) a. She walked her dog.
b. Farmer Joe grew those grape vines. (Cruse 1972: 520)
c. John flew the falcon. (Ibid)
d. John worked the men hard. (Ibid)
e. John marched the prisoners. (Ibid)
f. I stopped the man in the street. (Shibatani 1976: 36)

The events expressed in (8) are activities people commonly engage in, or "conventionalized scenarios" (Goldberg 1995: 169), so they are clearly understood through the lexical causatives over their original, direct control sense. Thus, Shibatani (1976: 36) says, "The cases in which lexical causative forms express nonmanipulative [indirect – my note] causation involve the notion of conventionalized purposes associated with the causative situation ... the speaker's stopping the man [f] is an incidental event ... the ultimate purpose being to ask for a light, for directions, etc.". In (d), the word *hard* provides a clue to the interpretation, just like the path phrases in (7).

This generalization must be limited, however, because there is a type of indirect causation that can only be expressed by two-clause, periphrastic causatives even if the meaning is clear—the verbs that highlight the dependent agent's role of making a "cognitive decision" before complying with the main agent (Goldberg 1995: 166), as exemplified in (9):

(9) a. *Sam encouraged / convinced / persuaded / Bob into the room. (Goldberg 1995: 166)
b. Sam encouraged / convinced/ persuaded Bob *to go* into the room. (Ibid)

By contrast, in (7) and (8) the dependent agent's decision is absent or ignored, and what is highlighted is only its compliance with the control of the main agent. The data show that these two types of indirect causation ((7)+(8) vs. (9)) are treated differently in English. It seems, then, that when the dependent agent's decision is absent or ignored, the dependent agency itself is ignored, and the event is seen as a single impact, as indicated by the fact that

such events can be encoded with single-clause, lexical causatives. On the other hand, when the dependent agent's decision is highlighted, the event seems to be seen as a series of two impacts as suggested by the requirement of two clauses. Here, a single event expressed by a single matrix verb consists of two non-embedded impacts, constituting an aprototypical example of the single event.

Nevertheless, this should still be distinguished from a series of impacts involving two *independent* agents, which can never be described with a single matrix verb. For instance, if I park my car in some exposed parking lot, and some driver bumps into it and dents it, there will be no way of expressing this with a single matrix verb, although my parking it there provided a necessarily causal link in producing the effect (i.e., car's denting):

(10) *I dented my car.
*I made/had/caused/let/allowed my car (to) be dented.
*I made/had/caused/let/allowed someone (to) dent my car.

No verb will arise to encode this kind of situation as a single matrix verb (Carlson 1998: 1-6; Shibatani 2002: 3). This is because this effect is produced (in part) by an agent that is entirely independent of my control. The reason events of (9) can be encoded with a single matrix verb, then, is that the second agent is dependent, so the effect can still be seen as having been produced *by* the main agent, though in a limited sense. This means, then, that even in (9) the events do not have two non-embedded impacts in a full sense, and the event can still be thought of as a single impact in an extended sense. This exception, then, only serves to show that single impact is a prototype category.

3 A single-impact model of transitivity

3.1 Existing single-impact approaches to transitivity

3.1.1 Croft: causal chains, event structure, and transitivity

After establishing events as single causal impacts, Croft (1990) analyzes how single

impacts are structured, and this leads to his proposal of 'causal chain model of event structure' (Ibid: 51). He (Ibid: 49) notes that event structure determines "what verb meanings are possible" because verb meanings are abstracted from events in verb categorization, and thus event structure constitutes the basic frame of verb meaning (see also 1998: 47; Schaefer and Egbokhare 2009; Levin and R. Hovav 2005: 70; Carlson 1998: 1, 9). His event structure is represented by three types of causal chain, which he calls 'event types': causative, inchoative, and stative. Each chain represents a different relationship between the three main components of the single impact: one Initiator (cause), one Patient, and one endpoint, which indicates the effect in terms of the state or location of the Patient:

(11) a. **Causative**: The rock broke the window.

rock		window		(window)	
*	→	*	→	(*)	→
	cause		become		broken

b. **Inchoative**: The window broke.

window		(window)	
*	→	(*)	→
	become		broken

c. **Stative**: The window is broken. (Ibid: 53-54)

window	
*	→
	broken

Croft (1990: 58) says that in order for a causal chain to be "easily isolable from the causal network", it must have a "clear starting point" and a "clear endpoint". To have a clear starting point, "it must be conceptualized as not having a clear prior cause", that is, as having an "autonomous source of causation"—most typically a human Initiator. This means that all Initiators, even inanimates like rocks (a) and windows (b, c), are seen as autonomous causes. This is why he says that the subject of the intransitive *break* (b) is construed as "acting (changing state) on its own" (1991: 170). Likewise, the Initiator of the Stative chain (c) should be seen as causing itself to remain in the state (see also Talmy 2000: 475 for linguistic construal of natural causation). In fact, it makes sense to see stative events as involving causation, for every state requires energy if it is to continue to exist. Even a rock requires energy just to be, energy to hold its molecules together. I suggest that when we say "There is

a rock over there" we see it as drawing the energy of existence from itself in a self-causation for existence. On the other hand, "the clear endpoint", affirms Croft, "is provided by the ending state" (1990: 58; see also 1998: 46, 51).

The self-causation of inchoatives (as well as the general notion of self-causation) seems confirmed by different acceptability of adverbs used with them:

(12) a. The tank filled automatically / quickly / slowly / *hurriedly / *unwillingly / *gladly.
b. The price decreased abruptly / quickly / slowly / *hurriedly / *unwillingly (Wanner 2009: 113) / *gladly.
c. The wall painted easily / ?quickly / ?slowly / *hurriedly / *unwillingly / *gladly.

In ((12)a, b) the unacceptable adverbs apply exclusively to human (or at least animate) agents. Their unacceptability can be explained by saying that the adverbs used with inchoatives modify the action as a self-initiated action of the inchoative subject rather than an action of the real human cause behind it, and the adverbs that only apply to human or animate agents are inappropriate because the inchoative subject is inanimate. Naturally, then, the felicitousness of inchoative description depends on how far the real cause can be removed from the scene. For instance, the inchoative description of tank filling would be more appropriate when it occurs naturally (by rain, for instance) or indirectly through a hose than when it occurs directly by someone pouring water into it. Price movement is ideal for inchoative description because it can be observed through price tags and charts without being conscious of the people behind it. The painting process, however, allows little room for backgrounding the painter, and this must be why its inchoative description has limited options for adverbs as shown in (c). I suggest that the acceptability of the adverbs here depends on how far they can background the painter. *The wall painted easily* is more a description about the wall (i.e., it allowed easy painting) than that of the painting action, while *The wall painted quickly/slowly* is more a description of the painting action and thus inevitably foregrounds the painter. This must be why these adverbs are unacceptable here although they can apply to inanimate agents (See Sohn 1998: for paint as a middle verb).

A comparison of inchoatives with 'process passives' (Croft 1991: 215; Siewierska 1984; Quirk 1985) in (13), which essentially describe the same process but bring the real agent into the scene, will make the point clearer:

(13) a. The tank was filled automatically / quickly / slowly / hurriedly / unwillingly / gladly.

b. The price was decreased abruptly / quickly / slowly / hurriedly / unwillingly (Wanner 2009: 113) / gladly.
c. The wall was painted easily / quickly / slowly / hurriedly / unwillingly / gladly.

Here the adverbs refer to the passive agent, and so all of them are acceptable. In the process passive the subject is a genuine patient rather than a self-causing agent (see also Langacker 2008: 385f for an explanation of the difference between passives, middles, and 'absolute intransitives' in terms of agent prominence).

In the Causative chain ((11)a), the starting point represents the Initiator (cause). The second point of the chain is the Patient, and the third point is the state entered by the Patient—the broken state. [1] In the Inchoative chain (b), the second point represents the broken state of the window. In the Stative chain, the Initiator and state coincide on the first point, and this means the Initiator is already in the state at the beginning of the event. The final arrow, then, represents the continuation of this state (1991: 170). The endpoint can be a location. For instance, in *I sprayed paint onto the wall*, *wall* is the locative endpoint on the Causative chain; in *He went to London*, *London* is a locative endpoint on the Inchoative chain; and in *John is in the garden*, *garden* is a locative endpoint on the Stative chain. The Inchoative and Stative chains do not show the Patient. However, the Patient cannot be absent in the chain since it is the participant that manifests the effect—one that is caused to be in a state/location. In the Inchoative and Stative chains it is the Initiator that is in the state/location; here, therefore, the Initiator must be the Patient as well. In other words, the Inchoative and Stative Initiators are self-causing causes. Langacker describes this as follows:

Quite important linguistically, however, is a minimal action chain consisting of just

[1] In later works (1991, 1998) Croft calls the Patient the 'endpoint of the verbal profile'. However, I find the notion of verbal profile somewhat inconsistent. It normally includes the cause, Patient, and state (so the Causative, Inchoative, and Stative chains are all verbal profiles), but sometimes includes the cause and Patient only, and always excludes the location. Thus it is not clear how the verbal profile, which is proposed as a unit isolatable from the causal network, relates to the single impact, which always includes a cause, a Patient, and a state/location. In any case, when the verbal profile includes the state, its endpoint is the state, not the Patient. Thus, in this paper I will keep the use of the term *endpoint* in Croft (1990)—to refer to the state/location. This is consistent with his view that state/location is what truly marks the end of the single impact (1990: 58). The verbal profile part of Croft's notation will be ignored in this paper because it is not directly relevant to the issue of transitivity.

> one link: a single, two-participant interaction. Also important is a degenerate action chain in which the same participant is both the source of energy and the locus of its manifestation: a one-participant action (Langacker 2008: 356).

This brings us to the issue of transitivity. For Croft the Causative chain represents the transitive event structure, while the Inchoative and Stative chains represent the intransitive structure. His notion of transitivity comes out clearer with a new notation he introduces. In Croft (1998), in order to distinguish the different types of causal segments and the participants, he replaces the arrows with different types of lines as shown in (14) and the dots with variables such as x and y as in (15) and (16).

(14) CAUSE CHANGE (PROCESS) STATE
* ..... * ========== (*) ---------- (*) (1998: 47, 58)

He presents the abstract event structure for transitive verbs as (15). For intransitives, however, he does not provide a single abstract structure, but only a series of event types as shown in (16), where (a, b) reproduce ((11)b, c):

(15) x ..... y ========== (y) ---------- (y) (1998: 51)
********** transitive verb **********

(16) a. y ========== (y) ---------- (y) (1998: 48)
***** inchoative verb type ******** *die*

b. (y) ---------- (y)
**** stative/adj **** *pure*

c. x ..... (x) ========= (x)
***** activity verb type ******** *dance*

d. x ========== (x)
**** activity verb type **** *sparkle*

The intransitive event types are quite diverse, and Croft does not fully explain why their representations differ as they do; hence, it would be difficult to abstract a single structure from them. The intransitive chains have a problem, however, because they, except (c), have no cause segment. This violates Croft's own requirement that a causal chain must have a

"clear starting point". Thus, (c) should be taken as most standard for intransitives, and the other chains must follow the standard, that is, add a cause segment with same letter (x or y) as the cause.

The transitivity distinction, then, lies in the cause segment: in the transitive structure x causes y to be in a state/location; while in the intransitive structure x causes x (or y causes y) to be in a state/location. In other words, in the transitive structure the cause and Patient are distinct, while in the intransitive structure they are identical. Croft (1998: 51) confirms this by saying that "the one participant in an intransitive event" is at both ends of the 'verbal profile' (see Note 1)), which means it is both the cause (beginning of verbal profile) and the Patient (end of verbal profile), and thus "could be linked to the [transitive] subject" (in accusative languages) "or to object" (in ergative languages).

Transitivity as distinctness of the cause (agent) and Patient has been discussed by other linguists, most notably by Kemmer (1993; 1994), whom we will consider below, and also by Naess (2007: 22, 30) and DeLancey (1987: 60-61). This is supported by the views that in transitive events the causation is 'external', occurring between the two distinct participants, while in intransitive events the causation is 'internal', or a self-causation of the single participant (Levin 1999: 232, 35; RH&L 1998: 125; L&RH 1994: 52; Wolff 2003: 10, n8; Jackendoff 1990: 128). Especially, with respect to the co-presence of a cause and Patient in the intransitive subject, Blake (1982: 74) notes that "a number of linguists consider all instances of intransitive subjects (Si) to be [+patient]". Furthermore, even the subjects that are objectively patients, as in *The vase broke* and *The log rolled across the field*, are still understood as acting "on their own", "spontaneously", or "autonomously" (Croft 1991: 170; Haspelmath 1993: 90; Lemmens 1998: 33, 41; Talmy 1985; Talmy 2000: 474; Langacker 2008: 356). Kemmer sums this up thus (by *Endpoint* she means Patient):

> The spontaneous process type involves events which are treated as "autonomous events", i.e., events portrayed by the speaker as occurring independently of any external causer (Talmy 1985; Langacker 1991). The single participant coded is thus viewed as the Initiator; by virtue of undergoing some change of state as well, it is also an Endpoint (1994: 212).

There is another problem with Croft's notation: process/change segment and state segment. The former seems to indicate a change into a state/location (Patient entering a new state/location) and the latter a continuation of a state/location (Patient remaining in a

state/location) (1991: 170). Many of his chains have both segments; however, this violates the requirement that the single impact have one effect only, because change and continuation are two distinct effects. Furthermore, his distinction between the change segment and state segment sometimes seems arbitrary. For instance, *dance* and *sparkle* have a change segment (c, d), but the effects of the *dance* and *sparkle* events are more plausibly a continuation of a dancing state and sparkling state respectively. Accordingly, the transitive and intransitive chains can be revised as follows; here each event only has two segments, one representing the causation and the other representing the effect:

(17) **Transitive**
a. Change: x ..... y ========== (y) *change, kill, break, put*
b. Maintain: x ..... y ---------- (y) *maintain, preserve, keep*

Intransitive
a. Change: x ..... (x) ========== (x) *die, change, break*
b. Maintain: x ..... (x) ---------- (x) *pure, sparkle, dance, run*

3.1.2 Kemmer: transitivity as distinguishability

Transitivity as Causer/Bearer distinctness is confirmed by Kemmer's (1993; 1994) work on middle verbs (see also Arrese 1997; Naess 2007). Kemmer (1993: 238) defines middle verbs as those that express events where the 'Initiator' and 'Endpoint' are "equated"; middles portray an event as an activity of a single entity that embodies both the Initiator and Endpoint. Her terms *Initiator* and *Endpoint* correspond to Croft's *Initiator* and *Patient* respectively (Kemmer 1993: 51), and thus to my terms *Causer* and *Effect Bearer*. Kemmer surveys various 'situation types' expressed by middle verbs across languages and presents the following 'body action middles' as their representative samples. In *turn*, for instance, the subject is an Initiator because it causes the turning action, and an Endpoint because it is the entity that is turned and enters the turned state:

(18) Grooming or body care: wash, get dressed, shave
Nontranslational motion: stretch (one's body), turn
Change in the body posture: sit down, kneel down, rise (Kemmer 1994: 182)

She observes that some languages have a dedicated marker for the middle situation types, which she calls 'middle marker', and this leads her to conclude that middles constitute a distinct grammatical category. On the other hand, "some languages, rather than having a

designated middle form, regularly express the situation types illustrated above with unmarked, intransitive morphosyntax or other constructions (cf. English *wash*; *dress/ get dressed*)" (1994: 184).

Much of Kemmer's work is devoted to comparing middles with reflexives: she explains that their distinction hinges on the distinguishability of the Initiator and Endpoint, which she also calls Agent and Patient respectively:

> 'He lifted himself up' would be used appropriately in the case of a person who is handicapped or perhaps utterly exhausted physically. ... *Tammy dressed herself* is quite appropriate to use of a small child who does not yet have full control of her limbs or of a recuperating hospital patient. The reason that the heavy form [reflexive – my note] appears in situations where there is some lack of body control is that in such cases the subject and object are viewed as distinguishable aspects of a single referential entity. ... the semantic role of Patient implied by the schematic semantics of the transitive verb is in this case actually instantiated by an entity in some degree distinct from the Agent (1994: 205-6).

In some of the languages with a middle marker, the middle marker and 'reflexive marker' are identical, and she calls such languages 'one-form languages'; and in others, they are distinct, and she calls them 'two-form languages' (1994: 188-9).

Now, she observes how these categories relate to the transitive and intransitive systems of the language:

> In one-form languages ... Since the reflexive and middle types fall together semantically in opposition to two-participant events, the possibility exists for both these uses to pattern together in opposition to morphologically transitive constructions. In two-form languages, on the other hand, the formal opposition is ... between events with low elaboration (the middles) and events with relatively higher elaboration (two-participant and reflexive events) (1994: 216).

In other words, when they share an identical marker (one-form language), they pattern like intransitives, and when they have distinct markers (two-form language) middles pattern like intransitives and reflexives pattern like transitives (see also Langacker 2008: 395); there is no language where middles are closer to transitives and reflexives are closer to intransitives, whether the language has a middle marker or not.

This leads her to conclude that transitivity is fundamentally driven by the distinguishability of the Initiator and Endpoint, and she (1993: 73; 1994: 209) presents the following transitivity continuum, with an explanation in the following quotation (see also

Hopper & Thompson 1980: 277):

Two-participant event – Reflexive – Middle – One-participant event

Degree of distinguishability of participants

> A two-participant event is characterized by the conception of two distinct participants filling two semantic roles in some asymmetric interaction or relation. The reflexive and the body action middle, like the two-participant event, evoke two separate semantic roles [Initiator and Endpoint – my note]. However, unlike two-participant events, they conflate the dual roles in a single referential entity. By virtue of the distinct roles they evoke, the reflexive and middle denote relations that are internally complex. But the reflexive implies a conceptual differentiation of the referential entity into discrete subparts, whereas the middle is lacking in this differentiation. ... the intransitive type is the extreme case of low participant distinguishability (1993: 72-3; 1994: 208).

Kemmer does not provide much explanation about the difference between middles and 'prototypical intransitives', and this thesis will not be concerned with their fine semantic difference. What is important here is that intransitives, including prototypical intransitives and often the middles, have the Initiator and Endpoint in the same entity, and transitives have them as distinct entities, standing at the opposite ends of the continuum of distinguishability.

Kemmer's notion of distinguishability is taken up by Naess (2009), who claims that transitivity is maximized by maximally distinct agent and patient, and reduced by the degree to which they bear similarity. For him, for instance, the verbs *eat* and *drink* are low in transitivity because the agent is affected by the eating or drinking action as well as the patient and thus not highly distinct from the patient:

> Omitting or backgrounding the object can be seen as a strategy for emphasizing the effect of the act on the agent, by de-emphasizing that on the patient. This would seem to be a plausible explanation for the use of the antipassive in the Kalkatungu example in (13); the sentence is about the effect on the agent as a result of eating the fish, and the effect on the fish itself is of relatively little importance... the omissibility of the object with EAT and DRINK verbs is related to the affected agent semantics of these verbs, and omitting the object has the effect of highlighting the effect of the action on the agent (Naess 2009: 35).

However, Naess seems to misinterpret Kemmer in two respects: First, Kemmer's notion of

distinguishability is ontological (Initiator and Patient are two separate entities), while for Naess distinctness means that the agent and patient as separate entities differ in their attributes. Second, for Kemmer the Initiator is affected by its own self-causation, while for Naess the agent is affected by the resulting action, for instance, by eating and thus by the food taken in. Thus, in eat, the agent is affected in both transitive use and intransitive uses. For this reason, his theory seems unable to account for the difference between noncausatives and semi-causatives and also that between the transitive and intransitive uses of semi-causatives such as *eat*.

3.2 A new representation for event structure

3.2.1 A new representation: overview

Having revised Croft's causal chain representation, I find it more convenient to represent event structure algebraically, or as predicate function (Levin & R. Hovav 2005: 69) as shown below. I replace Croft's and Kemmer's terms *Initiator* and *Patient/Endpoint* respectively with **Effect Causer** and **Effect Bearer**. Following the causal chain model, Causer is the first argument (X) of the event structure, and Bearer the second argument (X or Y). This closely resembles Jackendoff's (1990: 127) 'Action tier', with Actor and Patient. In unary event structure Causer and Bearer are realized in a single participant (X), and in binary event structure they are realized in two distinct participants (X, Y):

Unary event structure
(Effect orientation: actor-Bearer: actor = Causer + Bearer)

X = Effect Causer / X = Effect Bearer
S = subject

[X Maintain X in <State/Location>]
smile [S Maintain S in <State: smiling>],
belong [S Maintain S in <State: belonging – *to* SMP >]
sweep [S Maintain S in < State: sweeping – SMP>]
stay [S Maintain S in <Location>]

[X Change X to <State/Location>]
break [S Change S to <State: broken>]
fill [S Change S to < State: filled – *with* SMP >]
go [S Change S to <Location>]

Binary event structure
(Effect orientation: patient-Bearer: actor = Causer / patient = Bearer)

X = Effect Causer / Y = Effect Bearer
S = subject / O = direct object

[X Maintain Y in <State/Location>]
preserve [S Maintain O in <State: unspoiled>]
play (piano) [S Maintain O in <State: playing>]
see [O Maintain S in <State: seeing>] (reversed)
keep [S Maintain O in <Location>]

[X Change Y to <State/Location>]
break [S Change O to <State: broken>]
fill [S Change O to < State: filled – *with* SMP>]
put [S Change O to <Location>]

The terms (Effect) Causer and (Effect) Bearer seem to describe the roles more accurately and make clear that these participants are geared to the single effect expressed by the event. The Bearer bears (or manifests) the effect by being caused by the Causer to remain in (Maintain) or enter (Change) the **Effect SL (State/Location)**. Thus, Causer, Bearer, and Effect SL are the main building blocks the single impact, and will be called **impact participants**. [2] On the other hand, I would like to use the terms **actor** and **patient** to refer to the participants at a level that is more basic than the level of Causer and Bearer. These terms are used in maximally broad senses: the actors include the construed Initiators of the inchoative and stative events, and the patients are not limited to the entities that undergo "change of state"—participants whose location is changed, and those that are maintained in a state or location are also regarded as affected and thus as patients. In this sense, all events have an actor, and many of them also a patient external to the actor; most of the actors are realized in subjects, and most of the patients in objects. All **actor-only verbs** (including actor-

[2] The use of the term *participant* for a state or location may sound unorthodox. For instance, Langacker (2008) uses it exclusively for what he calls 'actors' such as subjects and objects, while using the term *setting* for locations. However, I use the term in a broad sense, to refer to any entity that participates in a relation that constitutes an event. In some verbs (*break*) Effect SL is only implied by the verb and does not generate a participant.

nonpatient verbs) are unaries, while the **actor-patient verbs** are binaries when and only when the patient is the Bearer. Not all patients are selected as Bearers, and the non-Bearer patients serve as 'patient SMP' in unaries (see below). Accordingly, the actor may be selected as both Causer and Bearer (with no patient or non-Bearer patient) or as Causer only (with patient as Bearer). Thus, the **effect orientation** of an event, which defines how the event expresses the effect, is either **actor-Bearer** [X X] or **patient-Bearer** [X Y], and they respectively define unary and binary event structures. Bearers and patients do not differ in objective affectedness, but only in the fact that patients constitute the single effect only as Bearers.

Effect orientation seems to be a linguistic primitive like topicality and telicity, intuitively recognized in events. Effect orientation is distinct from topicality, and also Bearer-hood from topichood. Effect orientation has to do with the objective expression of what happened. Verbs express what happened, or what is going on; however, as a single impact a verb can express only one happening (effect) to only one participant. Actor-Bearer verbs express what happened to the actor, and patient-Bearer verbs what happened to the patient, while at the same time implying other accompanying processes (such as movement of the filling material in *fill*). By contrast, topicality imposes interest and perspective on objective occurrence of events (Reinhart 1982: 5; Guijarro 2000: 97, 100; Strawson 1964: 97; Langacker 2008: 516; Dooley 2007: 79). Thus, Bearers and topics do not necessarily converge, although they do most of the time as interest almost always falls on the participant to which something happens. For instance, subject is usually a topic in the discourse, and topical subjects of patient-Bearer verbs are cases of non-Bearer topics. On the other hand, subject can sometimes be nontopical (Lambrecht 1994: 137f), and nontopical subjects of actor-Bearer verbs are cases of non-topic Bearers. Furthermore, (25) provides cases of nontopical patients of patient-Bearer verbs. On the other hand, the distinctness of effect orientation from telicity is evident from the fact that both actor-Bearer and patient-Bearer events can be Maintain events (atelic) or Change events (telic) (see also 5.2.5).

Concerning Effect SL, the representation of Effect Locations is quite straightforward, but Effect States are quite diverse, and their identification and representation are more complicated. The term *State* here is meant in a maximally broad sense, including activities such as talking and running as well as the static states typically expressed by adjectives.

Verbs specify the Effect State in two different ways: in terms of the Bearer alone or as a relationship between the Bearer and another prominent entity. The first way is exemplified by *preserve, play*, *break* and *smile* (see the event structures of these verbs above), where the States are defined by a configuration or action of the Bearer alone. The second way can be exemplified by *belong, fill,* and *sweep. Belong* denotes an event where the Causer maintains itself as the Bearer in a possessive relationship with a possessor, which constitutes the Effect State of belonging. In events represented by binary *fill*, the Causer puts a container as the Bearer into a relationship where it is full of some content, which constitutes the filled State. In unary *fill* a container is seen as putting itself into this State. In *sweep*, the sweeper (Causer) maintains itself as the Bearer in a sweeping State, which is defined by its sweeping relationship with some surface. Here, the possessor in *belong*, the content in *fill* and, and the surface in *sweep* play a prominent role in defining the State; I would like to call such participants **SMPs** (state maker participants), and the State defined by them **SMP State**. Among them, the possessor and content are unaffected, nonpatients and expressed in oblique, while the surface is a patient and optionally expressed in object (although *sweep* does not specify how the surface is affected, it does represents it as affected in *some* way). The former will be called **nonpatient SMP**, and the latter **patient SMP**; the objects that realize patient SMPs are different from direct objects although they appear in the direct object position, and I suggest they may be called 'SMP objects'. The following event structures illustrate further varieties of SMP:

Clausal SMPs

try [S Maintain S in <State: trying – *to-inf* SMP>]
complain [S Maintain S in <State: complaining – *that* SMP>]

SMP for patient Bearer

give [S Change O to <State: in receipt – SMP>]
tell [S Change O to <State: informed – *about* SMP>]

Locative alternation

spray paint on the wall [S Change O to <Location>]
spray wall with paint [S change O to <SMP State: sprayed – *with* SMP>]

The distinction between Bearers and SMPs is fundamental to the difference between the present approach and multi-feature approach, and will be deeply explored in the rest of the

thesis. The present approach claims that most of the second participants in the supposedly low-transitive "two-participant" clauses can be re-analyzed as SMPs in unary clauses.

Primitive predicate Maintain represents atelic activity or state, and Change represents telic achievement or accomplishment. In addition to these four categories, Levin and R. Hovav (2005) introduce the category 'semelfactive', which include verbs such as *hit* and *kick*. Semelfactives seem unique because unlike atelic verbs they have no duration in non-iterative use, and unlike telic verbs they do not have a telos (or result reached). In our event structure system, however, they unambiguously belong to Maintain: *hit* [S Maintain O in <State: hit>], *kick* [S Maintain O in <State: kicked>]. The fact that O is maintained in the State only for an instant when these verbs are in non-iterative use is irrelevant because Maintain does not necessarily require a prolonged duration of maintenance. However, Maintenance and Change should not be understood as an unchangeable feature of the verb but rather as showing a default feature of the verb that may change in non-default contexts (see 5.1.4).

Finally, the event structures for individual verbs replace X and/or Y with S (subject) and/or O (direct object). Contra Croft, who holds that the Initiator is always realized as subject (1998: 41, 51; 1991: 219), I maintain that the canonical mapping of subject-Causer and object-Bearer may be reversed, the Causer being realized as object and the Bearer as subject (see Eu 2013: for an argument for this position; see also Dowty 1991: 586; Jackendoff 1990: 140). The most notable example of this is the verbs of "stative experiencer" subject such as *see, hear, feel, notice, know, enjoy, like, hate, fear, suffer,* and *contract* (see event structure representation above) (L&RH 2005: 123; Croft 1991: 213f; Croft 1994: 49-52; Croft 2012: 233f). For the sake of simplicity, the reversed binaries will not be discussed in this thesis.

3.2.2 SMPs and Bearers in English verbs

We can now return to the selective specification discussed 2.2 and say that noncausatives, which express the actor's action as the effect, are actor-Bearer verbs, and causatives, which express the result on the patient as the effect, are patient-Bearer verbs. Therefore, the object of noncausatives is a patient SMP. As for semi-causatives, unary *eat* [S Maintain S in < State: eating – SMP>], for instance, describes an actor-Bearer event where an eater maintains itself in an eating State, defined by its eating relationship with some food (SMP),

and binary *eat* [S Change O to <State: eaten>] describes a patient-Bearer event where an eater puts some food in an eaten State.

Patient SMPs, in non- and semi-causatives, can be omitted (see 4.1.2 for a precise sense of omission), turned into an oblique (in conative alternation), followed by a resultative phrase, and replaced with a nonsubcategorized object in the resultative construction (see (19)), while causative patients, which are Bearers, cannot (see (20)) (R. Hovav and Levin 1998: 102-3; Goldberg 2001: 504; Kardos 2010: 4); thus, these behaviors align patient SMP with core intransitives (see (21)) and set them apart from causatives. Hence, R. Hovav and Levin (1998: 102) say that "result verbs are much more constrained in their syntactic behavior than the manner verbs".

(19) a1. Terry *swept*. (R. Hovav and Levin 1998: 98)
a2. She swept *at the floor* with the mop, trying to look as if she hadn't dosed off during work. (Google)
a3. Terry swept the floor *clean*. (R. Hovav and Levin 1998: 98)
a4. Terry swept the *crumbs into the corner*. (R. Hovav and Levin 1998: 98)
b1. I *ate*.
b2. I ate *at an apple* for hours. (Kac 2010: 4)
b3. The cows ate the field *bare*. (Levin and R. Hovav 2005: 222)
b4. I ate *myself sick*. (Kac 2010: 4)

(20) *Kelly *broke* again tonight when she did the dishes. (R. Hovav and Levin 2001: 780)
*Kelly broke *at the dishes*.
*Kelly broke the dishes *off the table*. (R. Hovav and Levin 1998: 103)
*The clumsy child broke *his knuckles to the bone*. (R. Hovav and Levin 1998: 103)

(21) a. Pat *ran*. (R. Hovav and Levin 1998: 98)
b. She ran *on the floor*. (Google)
c. Pat ran *herself ragged*. (R. Hovav and Levin 1998: 98)
d. Pat ran her *shoes to shreds* (R. Hovav and Levin 1998: 98)

Noncausatives such as *push, pull, touch, hit, kick, grab*, however, have prominent transitive use, and may seem not to fit the above behavior pattern. Indeed, Allerton (1975) regards *push* and *pull* as non-omitters (i.e., having an obligatory object), and Levin and R. Hovav (2005: 8) regard *hit* as such. In fact, R. Hovav and Levin do not list them as manner verbs. The reason they are seen as non-omitters, however, could be that objects can be omitted only when they can still be understood at a reasonable level of specificity (see 4.2), and these verbs, being highly diverse in their senses, rarely occur in contexts where such

understanding is available. In other words, it is possible that their objects are in fact omissible and yet rarely actually omitted, and this has led to the impression of their non-omissibility (or obligatoriness). Some examples of the above pattern are found, however, as in (22). Furthermore, Levin and R. Hovav (2005:1-2) compare *break* and *hit* and show that *hit* has much more freedom with the type of objects it takes.

(22) a1. They *pushed* through the crowd. (Levin 1993: 40 - "intransitive use")
a2. I pushed *at/on/against the table*. (Levin 1993: 42)
a3. Kay pushed the door *open*. (Levin and R. Hovav 2005: 222)
a4. They pushed *their way through the crowd*. (Levin 1993: 40)
b1. I'm training "Shogun" Rua right now and he's punching like crazy right now. ... But, when I first got him, he *hit* like a girl. (Google)
b2. Pat hit *at the door*. (Levin and R. Hovav 2005: 187)
b3. He hit the ball *across the field*. (Goldberg 1995: 170)
b4. He hit *his way out of the Mexican League* and signed a minor-league deal with the Mets. (Google)

In fact, many core intransitives have nonpatient SMPs, for instance, supporting surface in *run*, realized in oblique in ((21)b), and some linguists have noted the conceptual affinity between the two types of SMP:

> One could just as well argue that the intransitive use in [*She ate*] really involves one participant (the agent phrase) and describes an activity of that participant, similar to the way in which the intransitive verb *run* in English describes an activity of a runner. Other associated entities can be a necessary part of a larger semantic frame of intransitive verbs (legs in the case of *run*, food in the case of *eat*), but this does not require us to say that they are second participants which are simply unexpressed (Newman and Rice 2007: 228-9).

> The occurrence of both transitive and intransitive 'eat' and 'drink' in the world's languages, or even within the one language, suggests that eating and drinking can be easily conceptualized in either of two ways. On the one hand, eating and drinking can be viewed as an interaction between a person (one entity) and the food or drink (a second, distinct entity). This is the conceptualization underlying the transitive usage of the verbs 'eat' and 'drink'. On the other hand, there are aspects to eating and drinking which facilitate an intransitive encoding of these predicates. ... When one makes the consumer, as an experiencer, the focus (or the 'profile' component of meaning, using Langacker's 1987 term), then the amount, quality, nature, and even presence of the food itself becomes less relevant. In this way, 'eat' and 'drink' verbs align with 'walk' and 'run' verbs. 'Walk' and 'run' verbs include the notion of a supporting surface in their larger semantic characterization (at least in their typical meanings), but this supporting surface is easily backgrounded or assumed, with the result that 'walk' and 'run' are typically

encoded as intransitive predicates (Newman 2009: 5-6).

These remarks can be understood as saying that both *run* and unary *eat* are actor-Bearer verbs, which enables them to "background" the surface or food (by turning it into SMP) and exhibit the parallel behaviors.

3.3 A single-impact model of transitivity

I would like to call the present approach to transitivity **single-impact model of transitivity** because it claims that transitivity represents the two fundamentally distinct modes of encoding events as single impacts—namely, the **actor-Bearer orientation** and **patient-Bearer orientation**. Actor-Bearer verbs assert the occurrence of actor's action as the effect, or "what happens" in the event, while patient-Bearer verbs assert patient's affectedness as the effect. This model is nicely confirmed by the demonstrated alignment of core intransitives with noncausatives as actor-Bearer verbs against causatives as patient-Bearer verbs. True, in actor-Bearer events, it may be unconventional to say that the actor performing the action is affected and bears the effect because actor's action is normally understood as the cause. However, the conceptual discomfort can be dispelled if we see that in these events the actor is a cause that affects itself, and in performing the action (dancing, eating, sweeping, etc.) it is necessarily put in the State of the action (dancing state, eating state, sweeping state). Thus, in fact, the effect orientation of the event is more fundamental to the definition of transitivity than valency, which is merely a consequence of the fact that actor-Bearer verbs have the Causer and Bearer in a single participant and patient-Bearer verbs have them in two distinct participants.

This helps state more precisely the difference between the two approaches to transitivity. The multi-feature approach claims that the "two-participant" events with different degrees of transitivity (which include the actor-patient and actor-nonpatient events) share essentially the same type of participant interaction and differ only in the intensity of the interaction and/or the individuation of the "second participants". In contrast, the single-impact approach posits two fundamentally different types of participant interaction, namely, Causer - Bearer interaction and (Causer+Bearer) - SMP interaction, and claims that only the Bearer in the former is the true second participant because only the Bearer, not SMP, bears

the single effect.

Let us examine how the multi-features may explain the contrasting behaviors of causatives and noncausatives. The explanation would be that causatives are high in transitivity features, and noncausatives low in these features, and this makes causatives specify the patient result and noncausatives specify the actor action. However, on a closer look, none of these features seem relevant to producing the selective specification. Starting with Affectedness, it should be made clear that noncausative patients are *not* less (or un-) affected than causative patients but simply unspecified for affectedness. One may try to explain the selective specification by saying that causatives are more kinetic and can affect the patient more strongly. However, causatives *open, clean*, and *dry* do not seem to involve an action, whatever it may be, that is more kinetic than noncausative actions such as pushing, pulling, hitting, or grabbing. Furthermore, it is not even clear (without reference to single effect) why higher Kinesis should lead to non-specification of the action, and why lower Kinesis to non-specification of the result. Agency has the same problem: causatives are not necessarily more volitional or potent than noncausatives, and it is questionable that higher Agency leads to non-specification of the action, and lower Agency to non-specification of the result. On the contrary, if Agency was responsible for specification at all, it is high Agency that should produce action specification because it obviously means a strong action of the actor.

Finally, telicity appears more promising for the multi-feature approach, because the causative/noncausative divide is generally understood as coinciding with the telic/atelic divide, with semelfactives joining the atelic camp (R. Hovav and Levin 98: 104). However, many atelic actor-patient verbs behave just like telic causatives in terms of selective specification (so they should also be considered causatives). For instance, *preserve* specifies the result in the sense that the patient is maintained in an unspoiled state as a result of some action, while this action itself is unspecified—things can be preserved in a variety of ways. *Play (piano)* also specifies the result that a piano is played. True, it does seem to specify the playing action as well, but this is only because piano playing almost always occurs through this specific action. To see the selective specification of this verb, suppose the following cases: i) I turned on an electronic piano; ii) I performed a playing action in the air. One can describe both cases by saying, “He played the piano”. However, only in ii) can she

say, “But he did not *really* play it”. In other words, *play* leaves the action unspecified while specifying the result; thus, one *really* plays something when and only when the result obtains as specified. On the other hand, it seems difficult to find telic noncausatives, because just specifying the action does not normally require a goal. However, most of the noncausatives can have a telic sense with a goal, and this does not make them specify the result. For instance, saying, “I swept the floor in ten minutes” still does not specify what happened to the floor. These considerations show that telicity does not cause selective specification; rather, the strong association between telicity and causativity seems to result from the fact that noncausatives are atelic in their default sense, and causatives have been understood mainly in terms of telic actor-patient verbs.

Furthermore, the multi-feature approach is unable to explain why resultative augmentation is possible only with noncausatives and semi-causatives, which the single-impact model explains by saying that noncausative patients are SMPs so they do not add an effect to the one introduced by the resultative. In short, it seems to require the notion of single impact to explain the selective specification and differential behaviors of the causative and noncausative objects, and once single impact is accepted, the action and result can only be taken to indicate actor-Bearer and patient-Bearer orientations respectively.

4 Object omission in English

4.1 The phenomenon of object omission

4.1.1 Omitters vs. non-omitters

Many linguists have observed two different ways in which arguments that are supposedly obligatory are “deleted” other than in special constructions such as imperatives, and the discussion of their difference has focused on the deletion of objects:

> In CONTEXTUAL DELETION we delete an item that can be clearly reconstructed

> from the context, either linguistic or situational: I went to see the cricket. George was watching already. ... In INDEFINITE DELETION, on the other hand, we are faced with an object that is not recoverable, because it has not been thought of and it is not expected that the listener should concern himself with it. If in answer to the question *What's John doing?*, I say He's reading, the answer is quite self-sufficient and does not require my collocutor to deduce what John is reading. The deletion thus has a quite different status from the contextual deletion of He's watching, where we are required to reconstruct or 'recover' the object (me, her, the cricket, etc.) (Allerton 1975: 214-5).

Fillmore (1986: 95f; see also 2007) elaborates on the same phenomenon in terms of 'DNC' (definite null complements) and 'INC' (indefinite null complements), which refer to the two types of deleted ("missing") argument:

> With DNC the missing element must be retrieved from something given in the context; with INC the referent's identity is unknown or a matter of indifference. One test for the INC/DNC distinction has to do with determining whether it would sound odd for a speaker to admit ignorance of the identity of the referent of the missing phrase. It is not odd to say things like, "He was eating; I wonder what he was eating"; but it is odd to say things like "They found out; I wonder what they found out." The missing object of the surface-intransitive verb *eat* is indefinite; the missing object of the surface-intransitive verb *find out* is definite. The point is that one does not wonder about what one already knows (Fillmore 1986: 96).

To summarize these descriptions, object deletion is contextual (missing object is a DNC) when it is recoverable from the context, while object deletion is indefinite (missing object is an INC) when it is not recoverable and thus "unknown" (except as an abstract semantic role required by the verb meaning). This distinction is widely accepted, although different authors may use different terms for it (Fraser & Ross 1970; Goldberg 1995; Velasco & Munoz 2002; Groefsema 1995; Bresnan 1982; Dik 1989: 74; Ruppenhofer 2005). In contextual deletion, then, the object is present in the context; thus, it should be regarded as a transitive use, and I would like to say (as many linguists do) that it does not *omit* (although it deletes) the object. Hence, my term **object omission** will refer exclusively to the indefinite deletion.

The object-deleting verbs, then, are divided into those that delete it as a DNC and those that delete it as an INC. I would like to call the former **non-omitters** because the deletion does not omit the object, and call the latter **omitters**. I would like to call the objects deleted as a DNC and INC **DNC object** and **INC object** respectively. There is a group of transitive verbs, however, which never delete their object, even when there is a definite contextual

referent; for instance, Fillmore (1986) observes that in contrast to *find out*, we cannot just say *She discovered* even when we know what she discovered. These verbs, then, are hard-core non-omitters. For omitters, Allerton (1975) lists *clean, cook, drive, examine* 'test academically'*, hunt, paint, read, sew,* and *think (about)*, and Fillmore (1986) lists *eat, read, sing, cook*, *sew,* and *bake* (see Levin 1993: 33 for much more); for non-omitters, Allerton lists *follow, interrupt, look at, look for, notice, pull, push,* and *watch*, and Fillmore lists *see, hear, find out, discover, ring up, volunteer* (person), and many more.

4.1.2 Definiteness as determinacy

The difference between DNC object and INC object, however, requires a closer examination because it is not simply that one is contextually known and the other unknown. Their distinction is explained in terms of definiteness. Fillmore and Allerton provide ((23)a1, a2) to explain the indefiniteness of INC object. Fillmore's (1986: 97) comment on (a1) is that the INC object is "obligatorily disjoint in reference with anything saliently present in the pragmatic context"; in other words, *eat* here rejects *my sandwich* as its object:

(23) a1. A: What happened to my sandwich? B: *Fido ate. (Fillmore 1986: 97)
a2. I see you've got today's 'Guardian'. May I look? / *May I read? (Allerton 75:215)
b1. John brought the sandwiches and Ann ate.
b2. John picked up the glass of beer and drank. (Groefsema 1995: 142, 144)
b3. the *food* was very delicious and I ate today (Google)

This may suggest that for these authors the indefiniteness of INC object means that it is completely insulated from the context, even when its likely referent exists, and remains completely unknown, while the definiteness of DNC object means that it is identified with a definite contextual entity. However, this understanding is challenged by cases where an INC object seems to be specifically known, contextually as in (b1~b3) or through 'semantic specialization', to be discussed below. Groefsema (1995: 142, 44) introduces (b1, b2) against Fillmore's argument with (a1) and says that here *eat* and *drink* do take the contextual referents (*sandwiches*, *glass of beer*) as their objects, although the amount eaten or drunk is "unspecified". I would like to point out, however, that here what Ann ate and what John drank are not necessarily limited to the sandwiches or the glass of beer. Furthermore, there is even a possibility that Ann did not eat John's sandwiches, or John did not drink the beer he picked up (True, the latter possibility is quite unlikely, but still it is not a contradiction to

say after b2, “but he did not drink the beer he picked up”), but they ate or drank something completely unknown. Likewise, the object of *eat* in (b3) is most likely *the food*, but this does not preclude the possibility that the speaker in fact ate something else.

This suggests that the indefiniteness of INC object does not lie in its contextual insulation but its being indeterminate over the available referential options: it may be completely unknown (i.e., known only as a semantic role) or include (or be identified with) a specific known referent, and these options have different degrees of likelihood, but they can always be denied. In contrast, the DNC object is definite in the sense that it is determinate and fixed with a definite contextual referent. The oddity of the answers in (a1, a2), then, does not arise because the INC object rejects contextual referents but because it refuses to be determinate with them while the answers are expected to be statements about a determinate, definite entity. Indeed, indeterminacy seems to be the only way of resolving the seeming conflict between (a1, a2) and (b1, b2, b3).

On the other hand, many INC objects are in fact understood or known with varying degrees of specificity through ‘semantic specialization’:

> INC appears to include two distinguishable phenomena, one involving a semantic object of considerable genericity, the other requiring the specification of various degrees of semantic specialization. ... In their more generic intransitive uses, [eat and drink] designate simply the physical activity of eating stuff or drinking stuff: When my tongue was paralyzed I could not eat or drink. Yet in sentences We’ve already eaten / I’ve tried to stop drinking, each of these verbs has a more specialized meaning. In particular, EAT is used to mean something like ‘eat a meal’ – not merely ‘eat something’ and DRINK is used to mean ‘drink alcoholic beverages’. ... McCawley has remarked on the specialization of intransitive bake, as in: I spent the afternoon baking, where the missing object is taken to include breads or pastries, but not potatoes or hams (Fillmore 1986: 96-97).

Velasco and Munoz (2002: 5) explain that when we understand *eat* as ‘eat a meal’, “it is our world knowledge, the fact that we eat several times on the day, which leads us to the right interpretation of the understood object”. Furthermore, Levin (1993: 33) notes that *Mike ate* can mean he ate “something one typically eats”, and Rice (1988: 204) says that in *Each afternoon, John reads*, the missing object is likely to be books.

Thus, Allerton voices the concern that semantic specialization may contradict the understanding of INC objects as “unknown” and blur their distinction from DNC objects:

> Unfortunately, the distinction between contextual and indefinite deletion is not always so clear as we might like it to be. The problem seems to stem from the fact that some verbs allow indefinite deletion, but normally only with some semantic specialization of the verb. The verb *drink*, for instance, normally suggests an object beverage that is [+ALCOHOLIC] in sentences like: John's drinking. Do you drink much? But this is not necessarily the case (imagine, for example, the sentences said about or to a hospital patient); and indeed the implication may be in another direction, e.g. I've never drunk out of that (tea) cup. However, because many verbs at least have a TENDENCY to undergo semantic specialization with deletion, we may get the impression that a PARTICULAR object is implied. This is in a sense true, but irrelevant; because however particular or semantically specialized it is it does not have the feature CONTEXTUALLY DEFINITE. Thus the sentence: *John's been drinking again* may imply a particular KIND of object, but it does not refer to one established as DEFINITE contextually (Allerton 1975: 217-8).

However, it seems difficult to argue that contents of semantic specialization essentially differ from "one established as DEFINITE contextually", because, according to the linguists above, semantic specialization is also contextually established with varying degrees of definiteness, not only through immediate contexts such as the form, time, and place of utterance but also through general contexts such as "world knowledge" and speaker's life pattern. For instance, when someone says at lunch time "I have already eaten", the most likely object is lunch, and here lunch is as definite as any contextual entity can be. Rather, it is only when we understand indefiniteness as indeterminacy that the difference between INC and DNC objects holds up: lunch is a highly likely, but not a necessary object of *eat* here, and there is a possibility that the speaker in fact ate something simple and small rather than a full lunch.

In sum, our discussion of contextual referents and semantic specialization shows that the difference between DNC and INC objects cannot be explained in terms of whether they are recoverable from the context but should be explained in terms of whether they relate determinately or indeterminately to their potential referents that are contextually available. Object omission, then, is a phenomenon where the object is missing but understood with varying degrees of specificity and likelihood based on the meaning of the verb (semantic role of the patient) and/or immediate and general contexts.

Referential indeterminacy is not a unique feature of INC objects, however; in fact, I would like to propose that it is a common characteristic of missing optional arguments and adjuncts, which distinguishes them from missing obligatory arguments. Consider the following examples:

(24) a. There is a party tomorrow. I will *bring* some cheese.
b. There is a grocery store around the corner. I will *buy* some cheese.

In ((24)a) the missing location, to which I will bring the cheese, is the party, while in (b) the location to buy the cheese may or may not be the store around the corner. In other words, the reference to the contextual entity is determinate in (a) and indeterminate in (b). This difference seems to arise from the fact that location is obligatory in *bring* and optional in *buy*—in other words, *bring* requires that a definite location be specified, whether overtly or contextually, while *buy* can be used with no information about the location. This shows, then, that omitted objects are optional arguments; they are omissi*ble* in the unary event structure, not obligatorily omitted. Hence, Allerton observes:

> In fact, it seems a legitimate alternative analysis to regard a verb like *read* as being transitive in the one use and intransitive in the other, or as having an optionally specifiable object (Allerton 1975: 215).

In fact, then, the DNC/INC distinction represents the difference between the deletion of obligatory and optional arguments rather than different ways of deleting obligatory arguments.

4.2 Information requirement and object omission

Now, the question is why some actor-patient verbs omit and some do not omit their object. A naturally attractive explanation is that the object is omitted when it is 'predictable' specifically enough from the meaning of the verb, and cannot be omitted when it is not so predictable (Rice 1988; Velasco & Munoz 2002: 11; Yip & Matthews 2007: 136; Goldberg 2001: 510, 12; Levin 1993; RH&L 1998: 115; Groefsema 1995: 152-3). The object can be specifically predicted when the verb narrowly restricts its semantic range:

> Objects that can be omitted tend to be those whose lexical content is most probable given the meaning of the verb. Omitted objects are generally restricted to complements with a low degree of semantic independence from the verb. There are many verbs whose omitted objects are clearly understood because they are inferred from a very narrow, if not exclusive, range of possibilities. The lexical identity of the object is easily induced. ... John smokes (cigarettes/ *Marlboros/ *a pipe/ *smoking materials) ... When he goes to Boston, John drives (a car/ *a Toyota/ *a motorcycle/ *a vehicle) (Rice 1988: 203~4).

> Although they [non-omitters – my note] represent seemingly neutral and basic-level verbs, they each take too broad a range of possible objects. It is rather difficult, therefore, to determine exactly what was omitted since no default can be inferred. *Someone opened/ shut/ closed/ locked // *He carried/ toted/ held // *We thanked/ greeted/ introduced ... Verbs that are very neutral but that furthermore sustain a wide variety of complements tend always to require objects (e.g. “John loves *(lima beans/ Country and Western music).”). Verbs that are neutral but whose objects are restricted to one or two possible semantic domains may generally omit them (e.g. “John bet (five dollars/ his entire pension fund).”) (Ibid: 207).

Object omission, then, is simply a matter of whether the verb by itself can provide the information for the missing object that is specific enough to meet the information requirement of the discourse. Omitters will omit the object in contexts where the verb-provided information already meets the requirement, as an economic move “to cut down redundancy” (Allerton 1975: 214), and express it overtly when more specific information is required. By contrast, non-omitters lack the option to omit because the broad range of their object makes them unable to meet the information requirement by themselves in any given context.

There are two problems for the information requirement approach. First, it does not explain why omitters are indeterminate with contextual referents, especially when they are clearly present as in ((23)a1, a2). If the only difference between omitters and non-omitters is how much information the verb provides, and omitters often appear in contexts where the verb-provided information is not sufficient (so the object must be expressed), there is no reason they should not take a definite contextual referent just as non-omitters do in such contexts.

Second, it is not true that omitters always provide more specific information about their object than non-omitters do. In fact, the objects of some non-omitters are no less specific and no more diverse than that of *eat* (food): for instance, *ring up* (person), *rape* (woman – Fraser & Ross 1970), *volunteer* (person), *listen* (sound), *hear* (sound), *see* (sight), watch (sight), *find out* (information), and *kill* (living being – Goldberg 2001). It seems nonsensical to say that while *eat* is often used in contexts where its verb-provided information about its object is specific enough (so it is omitted), these verbs are never used in such contexts (so their objects are never omitted). It is true that utterances must always meet the information requirement of the discourse; hence, the sufficient specificity of the verb-provided

information is a necessary condition of object omission. In this regard, R. Hovav and Levin explain how different omitters may omit their object:

> The intransitive use of sweep is felicitous since there is a prototypical surface associated with a sweeping event: a floor. ... no particular context needs to be specified ... Other verbs of surface contact, such as wipe and rub, specify activities that are not associated with a particular surface; with such verbs an intransitive use is possible only if there is sufficient context available that the relevant surface can be determined (R. Hovav and Levin 1998: 115).

However, the non-omitters above show that specificity alone does not guarantee object omission.

4.3 Topicality and object omission

4.3.1 Topical approach to object omission

Some linguists have appealed to discourse topicality to understand object omission (Givón 1985: 206; Sasse 1984: 259; Goldberg 2001: 514; Langacker 2008: 395; Allerton 1975: 215; Wierzbicka 1988: 375; Sugayama 2007: 4). According to Wierzbicka:

> If there are two actors on the semantic stage but only one is in the limelight, the sentence can be intransitive, e.g., *John was eating* (*drinking, smoking, reading*, etc.). All of these activities presuppose a 'patient' as well as an agent, but the sentence is intransitive because the speaker is not interested in the patient and ignores it. As is well-known, the intransitive use of transitive verbs is restricted by a number of semantic factors (Hopper and Thompson 1980). Depending on the lexical and morphological make-up of the sentence the speaker may have a greater or lesser degree of freedom to ignore the patient. For example, if the action has a very drastic effect on the patient, so that the patient undergoes a radical change as a result, it is harder for the speaker to ignore the patient semantically and syntactically. Moreover, even a drastic change is easier to ignore if the patient is inanimate, shapeless, 'unimportant', than if it is human, individual, and 'important' (Wierzbicka 1988: 375).

Goldberg presents a more refined formulation:

> 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. ... Moreover, the action must be emphasized, thereby further shifting discourse prominence away from the patient argument (Goldberg 2001: 510).
>
> **Omission under Low Discourse Prominence:** 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.) (514).
>
> 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. 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. At the same time, if we compare (37a,b), there is some intuition that the action is more emphasized in (37a) than in (37b) ... 37 a. Pat read in the car. / b. Pat read a book in the car (517-8).

By the term *focal* Goldberg means 'unpredictable' (2001: 510) (hence, her term *discourse prominence* should be understood mainly in terms of topicality – see 513). Thus, her point is that objects are omitted only when they are nontopical and their indefinite referents are predictable (non-focal), that is, able to meet the information requirement of the discourse (see also 506, 508). For "non-causative verbs" such as *drink, smoke, sing, bake, read*, and *eat* (517) (which we have identified as semi-causatives), the object being "non-topical and non-focal" is also a sufficient condition for its omission ("the constraint that the action must be emphasized is relaxed"). Goldberg's finding, however, is that "causative verbs" such as *kill, break, cut, freeze, fold, please*, and *impress* also sometimes omit their objects. They differ from noncausatives, however, because to omit it they must meet an additional condition: "the action is particularly emphasized", "thereby further shifting discourse prominence away from the patient argument". Hence, we may identify the noncausatives as omitters and the causatives still as non-omitters because they can omit only under the special condition of action emphasis. Example (25), where the causative objects are indefinite and nontopical and yet still obligatory (because there is no action emphasis), illustrate this difference. In similar contexts (no action emphasis) non-causative objects would be omissible.

(25) a. The tiger killed *(some animal). (506)
b. Scarface was *killing* *(someone) when he got shot. (507)
c. I heard Pat *cut* *(something). (506)
d. As she was *pleasing* *(an audience), she thought about her upcoming audition. (507)
e. She heard that the singer *impressed* *(an audience) last night. (513)

On the other hand, other linguists have noted cases where obligatory objects (like causative objects) are omitted under special conditions:

> One property of structural omission is that it seems to override other relevant factors. That is, if a verb typically does not allow object omission, in most cases it will be possible to suggest a structural context in which it does. What is important to remember in these cases is that the omission is motivated by the structure itself and not necessarily by the properties of either the verb or the omitted object (Velasco and Munoz 2002: 3).

The topical approach explains why non-omitters do not omit even when their unexpressed patients provide no less information than omitters' patients. Furthermore, nontopicality seems well suited to the indefiniteness of the omitted objects: they can be indeterminate with the possible referents because they are "irrelevant" and thus their precise identity does not matter. Now our task is to ascertain what action emphasis is, how it is related to the noncausatives' selective specification of the action, and why it makes causative objects omissible.

4.3.2 Action emphasis

The following are some of Goldberg's (2001) examples of action emphasis, which he says is achieved through "repetition, strong affective stance, discourse topicality, [and/or] contrastive focus":

(26) a1. Tigers only *kill* at night.
a2. The sewing instructor *always cut* in straight lines.
a3. Pat *gave and gave*, but Chris just *took and took*.
a4. Scarface *killed again*.
b. Why would they give this creep a light prison term!? He *murdered*!
c1. He was always opposed to the idea of murder, but in the middle of battlefield, he had no trouble *killing*.
c2. (When do these animals hunt?) Beavers *kill* during the day, but tigers only *kill* at night.
d1. She *stole* but she could not *rob*.
d2. How could Griselda get a lighter prison term than Zard? He *burglarized*, but she

murdered. (Goldberg 2001)

According to Goldberg, examples (a) exemplify repetition, and the actions in (a1, a2) are repeated in the sense of being generic. About (b) she says, “murdering is emphasized by the speaker's strong affective stance toward the action”. In examples (c) “killing is emphasized in that it is the discourse topic of the conversation”, and examples (d) put different actions in contrast (514). With regard to the repetition, Dixon (1992: 288) provides a further explanation: “an Agent may pursue a certain type of activity for a longish period, and/or on a variety of Targets or Products. It is then possible to use the appropriate verb without a stated object”. Repetition seems to be involved in what Levin (1993: 39) calls “Characteristic Property Alternations”, where she says object omissions “indicate that the subject typically shows a propensity for the action named by the verb. That is, the action named by the verb is in some sense characteristic of the subject” (see also Fraser & Ross 1970: for 'habitual interpretation'; Sugayama 2007: for ‘non-default’ use, where the relation excluding the patient is ‘profiled’).

Further examples of action emphasis are given in (27):

(27) a. Bill *always interrupts*. (Rice 1988: 206)
b1. Martha *cooked* and *cleaned* while Mary *entertained*. (Ibid)
b2. The man *entered*, he *ordered*, he *ate*, he *paid*, he *left*. (Ibid)
b3. He'll *lie, steal, murder*--anything to further his ambitions. (S, VM)

Example (a) shows that generic statements allow omission without any adjuncts such as *at night* in ((26)a1) and *in straight lines* in ((26)a2). In examples (b) the actions appear in a series. This can be compared to examples ((26)d), cases of “contrast”. Their commonality is that two or more actions are listed in close proximity, and this seems to be what licenses the omission. Thus, I would like to put them together as cases of **action list**. In fact, ((26)a3) can also be considered action list.

Now we turn to the question why action emphasis facilitates object omission. Goldberg’s answer is that action emphasis reduces the topicality of the object (“further shifting discourse prominence away from the patient argument”) because it “shifts attention toward the action, and therefore away from the object itself” (2001: 514). Rice (1988: 206) makes a similar observation when she says that in ((27)a, b1, b2): “the particular object is fairly unimportant as the pragmatic focus is on the activity itself”. We have seen in (25) that

nontopical objects can still be obligatory in causatives, and Goldberg's point is that the omitted objects in (26) and (27), under action emphasis, are less topical than those in (25). However, the objects in (25), (26), and (27) are all nontopical, and this raises the following questions: can nontopical entities have their "topicality" reduced (for instance, by action emphasis), can some of them be more or less topical than others, and is there evidence that they are treated differently according to their degrees of topicality? If we do not find positive answers to these questions, which seems difficult, we need to find a different explanation for why action emphasis facilitates object omission.

4.4 A single-impact model of object omission

I would like to suggest that what happens in action emphasis is that the action is selected as the effect of the event, turning the causative verb into a noncausative. Causatives express what happened to the patient. However, in action emphasis, what the speaker expresses or communicates is what happened to the actor—that he performed the action (or his action occurred)—and what happened to the patient becomes a process merely implied in the background. Let us take each factor in turn to verify this. With repetition, if an actor repeats the same action over a certain period of time, so it has become "in some sense characteristic of the subject", a description of his action can naturally become a description of what happened to him rather than what happened to the patient. The "strong affective stance" seems to work similarly: the indignation about the murderer's action provides a special reason to focus on him and see "what happened" (effect) in the murdering event as his performance of the murder rather than as the victim being killed. On the other hand, "discourse topicality" and action list ((26)a3, d; (27)b) seem to work in similar ways. Here, the actions are discussed as a topic, put in comparison, and/or put in a series; hence, the verbs must express the action, rather than the result, as "what happened". Note here that ((27)b1) can be followed by the remark "but the room was still dirty", which shows that *clean* does not specify the result here; and in ((27)b2) the causatives (*enter, order, pay*) are treated on a par with the semi-causative *eat* and core intransitive *leave*.

I propose, then, that causatives have a latent unary event structure, and what action emphasis does is to activate this structure; the activation turns them into noncausatives, making them select the action as effect (or actor as Bearer) and making their object

omissible. True, causatives do not specify the action by default, and in 2.2.3 I have stated the position that a verb cannot select an action or result as an effect without specifying it. However, in the special case of action emphasis, we may say that the causative-turned noncausatives do specify the action based on the context and the most typical action to bring about the result. For instance, ((27)a) is most likely to be uttered in contexts where the hearer knows what type of interruption is meant. On the other hand, noncausatives and semi-causatives can omit without action emphasis because the former have only unary structure, and in the latter unary structure is always active. Now, combining all factors of object omission, the single impact model says that it is the unary or binary event structure that determines the omissibility and obligatoriness of objects, and it is the object topicality and information requirement specific to the given discourse that determine their actual omission, that is, whether they are actually omitted or not. In other words, to actually omit the object, a verb (causative or noncausative) must first have (or activate) a unary structure to make it omissible, and in addition have it as nontopical and predictable in the discourse context. This is in line with the general understanding that object omissibility is a feature of the verb, while actual omission is a feature of the discourse context.

As for semi-causatives, our discussion shows that they at least have a unary structure with an optional object. However, this does not show that they also have a binary structure and obligatory object as dual-structure verbs, although Goldberg (2001: 518) hints at their dual structure when she says, “the action is more emphasized in [*Pat read in the car*] than in [*Pat read a book in the car*]”. The question of dual structure will be taken up in the Web data test of the next chapter.

5 *Eat*: Web evidence for dual event structure

5.1 The web data test: design and method

5.1.1 The aim

This chapter tests the hypothesis that the semi-causative *eat* has two alternative event structures, one expressing eater's action and the other expressing the result (food consumption) as the effect, against the alternative hypothesis that *eat* has a single event structure expressing both the action and result. In our dual-structure hypothesis, while the intransitive use of *eat* (with zero object) represents the unary structure, its transitive use represents the unary structure if the object is optional, and the binary structure if it is obligatory. While zero object is indefinite, the optional and obligatory objects are definite (determinate); furthermore, they differ only in effect orientation, and not in the type of semantic and pragmatic information they can carry. On the other hand, under the single-structure hypothesis, all objects of *eat* are optional.

In most cases, identifying and distinguishing optional and obligatory objects of *eat* would require looking at the context to discern whether the occurrence of eating action or food consumption is the focus of the utterance. It would be worthwhile to examine a corpus of intransitive and transitive uses and look for consistent clues to actor-Bearer and patient-Bearer orientations. Finding a clear and consistent set of clues will strongly confirm the dual-structure hypothesis. A preliminary consideration of this study, however, has revealed that it may involve many cases of uncertainty and subjective judgment. Hence, I first turned to a Web data test, which seems to be more objective although indirect, in the sense that it does not attempt to distinguish and identify optional and obligatory objects of *eat*. In a nutshell, the test creates a set of contexts that are controlled to vary in effect orientation and observes the relative Web frequencies of test phrases built around *eat* and *eat something* in these contexts, and the frequencies show a pattern across the contexts that points to two distinct event structures of *eat*. A similar method of data test has been used by Eu (2009) to document the phenomenon entitled 'category invasion' with Web data.

5.1.2 Controlled contexts and test phrases

Our working hypothesis is that events are construed either as unary, actor-Bearer events or binary, patient-Bearer events, and the semantics of the event such as action emphasis may favor one construal over the other; and furthermore that event semantics and effect orientation can be controlled with various words and phrases (to be called **controllers**) in the test phrase just as topicality can be controlled by marking the intended topic with phrases like *as for*, and telicity can be controlled by adding *in/for five minutes*. The words *always* and *again* and the action list in (26) and (27) are controllers for action emphasis. We have noted that Goldberg's action emphasis elicits actor-Bearer construal. In addition, the fact that manner verbs are actor-Bearer verbs suggests that highlighting the manner of the action turns the attention to the action. Manner describes how an action is performed; hence, to talk about its manner, one must first understand the effect of the event as the performance of the action. Thus, manner words such as *peacefully, gracefully, quietly, aggressively*, and *alone* can serve as manner controllers in our test phrases (see (28)).

Another means of controlling the semantics of eating events is to associate them with choice or barrier: eating may occur simply by the eater choosing to eat or as a result of overcoming a certain barrier against food consumption such as sickness and mental hardship. Choice emphasizes actor-Bearer construal by bringing the attention to the volition (self-causation) and action of the eater; while barrier overcoming and the consequent achievement in food consumption emphasize patient-Bearer construal by bringing the attention to food consumption—"what happened" over the barrier is the affectedness of the patient (food consumption), and this is precisely what defines patient-Bearer events. Furthermore, describing such an event with the controller *finally* would bring greater attention to the barrier and a greater sense of achievement, further strengthening the patient-Bearer construal. The term *achievement* is used here in its ordinary sense and does not mean telic achievement. All uses of this term in this thesis will be in the ordinary sense unless specifically indicated as telic.

Combinations of these different forms of event semantics constitute **controlled contexts**. The Web test uses test phrases headed by *eat* to isolate these contexts and observes their relative frequencies across the contexts. The test phrases work in pairs. The pairing phrases are identical except that one is objectless (to be called **ZC**: zero-construction) and the other

has *something* as the object (to be called **SC**: *something*-construction). In our dual-structure hypothesis, ZC represents unary *eat*, while SC represents unary *eat* when *something* is optional and binary *eat* when it is obligatory. Each phrase pair has a controller in both phrases that ensures that the phrases occur in the target type of context. Shown below are candidate test phrase pairs, each pair condensed with a bracket:

(28) Preliminary test phrases (action emphasis)
Manner: I ate [0/something] *alone* (*slowly, quietly, peacefully, cautiously, steadily, quickly, in a hurry, in ten minutes, violently, aggressively*)
Repetition: I ate [0/something] *and ate* [0/something], I *always* eat [0/something] well
Action list: I ate [0/something] *and drank* (*and slept, and went to bed, and left*)

(29) Main test phrases (Choice-Barrier)
Action emphasis: TP1: I ate [0/something] *again*
Neutral: TP2: I ate [0/something] *today*
Achievement: TP3: I *finally* ate [0/something] today

Each test phrase (pair) has a ZC:SC ratio, which will be called **ZS ratio**. With preliminary test phrases we will take their ZS ratios without filtering for noise (assuming the noise affects both sides similarly) and consider their implications. With the main test phrases we will examine their instances, filter out the noise, and classify them into two event types: Choice and Barrier. The event types create two distinct controlled contexts for each test phrase, and thereby six contexts for the three test phrases. Each context, then, has a set of instances, which represent all utterances available on the Web that have been made in this context either in ZC or SC. We will then obtain a ZS ratio for each context and consider the implications.

5.1.3 Assumptions and predictions

The basic assumption behind the test is that given a controlled context (or set of instances sharing same event semantics) where eating events are expressed only by ZC or SC, its ZS ratio is sensitive to its effect orientation—directly to the strength of actor-Bearer orientation, and inversely to that of patient-Bearer orientation. Most of the controlled contexts allow both orientations, though in different relative strengths based on the semantics of the context, and their strength translates into the number of instances that carry the orientation. Zero object and *something* are highly (though not always)

interchangeable semantically, and when they are interchangeable, actor-Bearer orientation selects ZC, and patient-Bearer orientation selects SC. Thus, an increase in the strength of actor-Bearer orientation would increase the frequency of ZC within the context, and that of patient-Bearer orientation increase the frequency of SC. This explains why ZS ratio is sensitive to effect orientation.

On the other hand, to say that zero object in ZC and *something* in SC are not semantically exchangeable (or equivalent) means that zero object expresses a semantic content that *something* does not express, or *something* expresses one that zero object does not express. A good example of this is that zero object often refers to a meal, while *something* refers to a non-meal or something simpler than a meal (see 5.2.3). When a zero object expresses a meal, its patient-oriented counterpart (that is, its semantic equivalent that would be selected by patient-Bearer orientation) is a common noun such as *meal, lunch*, and *dinner* rather than *something*; however, constructions with these objects are not captured in our data and thus not reflected in the ZS ratio. On the other hand, actor-Bearer events expressing non-meal eating may select SC with *something* as an optional object rather than ZC in order to make clear the non-meal eating (Rice 1988: 203). I would like to use the term **semantic factors** to refer to the factors that create a difference between zero object and *something* (and between ZC and SC). In short, constructional choice (choice between ZC and SC) and ZS ratio are significantly influenced by semantic factors, not only by effect orientation. Thus, in analyzing contexts in terms of ZS ratio, semantic factors must also be taken into account. The next subsection will examine the semantic factors.

Now, we can predict, under the dual-structure hypothesis, that given two contexts that have no significant semantic difference and differ only in effect orientation, their ZS ratios will vary significantly according to their effect orientation. If, on the other hand, the single-structure hypothesis is correct, all occurrences of *something* in SC are optional, and the difference between ZC and SC is only semantic, for, as we have discussed, optional objects are omitted when and only when it is nontopical and predictable in the discourse. Accordingly, effect orientation should not prefer one construction over the other, and thus ZS ratios should not show significant differences across the controlled contexts as long as there are no significant semantic differences among these contexts.

5.1.4 Event semantics and telicity

The semantics of action emphasis and achievement may appear to be directly associated with telicity, as suggested by the seeming affinity between "action" and atelic activity and between "achievement" and telic achievement. However, the association is only apparent and accidental, and by no means necessary. Starting with action emphasis, it has varying relationships with telicity as shown in (30):

(30) Action emphasis phrases and telicity
a. Atelic
a1. I ate steadily
a2. I ate [0/something] and ate [0/something]
a3. I ate [0/something] and slept/drank (all day)
b. Telic
b1. I ate [0/something] quickly
b2. I ate [0/something] in ten minutes
b3. I ate [0/something] and went to bed
b4. I ate [0/something] and left
c. Neutral
c1. I ate [0/something] alone (slowly, quietly, peacefully, cautiously, in a hurry, violently, aggressively)
c2. I ate [0/something] again

The phrases (a) are atelic, while phrases (b) are telic. The phrases (a) are disqualified as test phrases because here it is impossible to separate telicity from effect orientation as the basis of constructional choice. By contrast, the controllers in phrases (c) do not seem to specify telicity and the phrases seem compatible with telic or atelic reading. This is shown by the fact that the manner phrases in (c1) and *again* (c2) can be used in atelic ((31)a) or telic (b) events:

(31) a1. He walked alone (slowly, quietly, peacefully, cautiously, in a hurry, violently, aggressively).
a2. He died alone (slowly, quietly, peacefully, violently).
b1. He swept again.
b2. It filled again.

On the other hand, all neutral and achievement phrases in (32) seem to be noncommittal as regards telicity:

(32) Neutral/achievement phrases and telicity: **neutral**
a. I ate [0/something] today

b. I finally ate [0/something] today

This is again shown by the fact that these controllers can be used in atelic ((33)a) or telic (b) events:

(33) a. I (finally) slept/ran/cleaned today.
b. He (finally) came/left today.

5.1.5 The reliability of search engine frequencies

Some linguists are skeptical about using Web data for linguistic research mainly because Web English is not screened for quality so contains much nonstandard English, and it is not controlled for balance and representativeness. Some linguists ardently defend its academic value, however, saying that the presence of nonstandard English on the Web is negligible, and representativeness is not an ideal that can be reached even by standard corpora (Kilgarriff & Grefenstette 2003). Thus, before using search engine frequencies as a basis of research we need to ensure that they are reliable indicators of linguistic facts and intuition.

For this purpose, we can take usages that are indisputably accepted as standard and see if this is confirmed by the search engine frequencies. In the list below each number heads a phrase pair, and each phrase pair expresses the same thought in different forms. In each pair, the standard form is put in the front of the bracket, and a non-standard form after it, and their frequencies follow in the same order. The frequencies are taken from the last result page (see 5.3.1) and between Nov. and Dec. 2013. All 16 phrase pairs tried confirm the standard usage. In 12, the frequencies of the two forms are comparable, and this again confirms my intuition and also the dictionary (OALD) information that they are both acceptable. We can say that the frequency ratio in each pair represents constructional preference in the context targeted by the phrase pair.

1. I should have [tried / try] it = 337:43
2. where [do / are] you go to school = 245:10

3. allow me [to / 0] come here = 129:6
4. let me [0 / to] come here = 282:3
5. I look forward to [seeing / see] you soon = 316:195
6. Long time no [see / seeing] 446:251
7. I avoided [drinking / to drink] = 271:13
8. I would like [to see / seeing] you = 349:36

9. Her children are [politer / more polite] = 78:14
10. [hung / hanged] it on the wall = 327:59
11. balance needs to be [struck / stricken] = 425:49
12. He is [handsomer / more handsome] than = 256:298

13. I will keep [0 / a] track of it: 257: 30
14. have [0 / an] evidence for it = 348:17
15. make [a / 0] big difference for me = 358:29
16. had [too long a / a too long] wait = 72:16

5.2 Semantic factors

In order to diagnose the impact of effect orientation in a given context, it would be ideal to have just the instances where zero object and *something* are equivalent, so the constructional choice solely reflects effect orientation and not semantic factors. The zero object in ZC and *something* in SC are semantically equivalent when they refer to some unidentified, non-specific food stuff, and this section discusses how they often diverge from this and take on extra meaning through various semantic factors. Instances affected by semantic factors are excluded from the frequency count and calculation of ZS ratio as much as possible. However, it is not always possible to identify them clearly, and in such cases our analysis will have to accept their presence in the data and influence on the ZS ratios and make conclusions that take it into account.

5.2.1 Post modification and elaboration

Both *something* and zero objects are capable of taking posterior elaboration as illustrated in ((34)a1~a4):

(34) a1. i **ate something** today my <u>first dinner</u> since Friday.
a2. but i **ate something** today also and <u>it</u> went real through me ...
a3. I finally **ate** today. A little piece of <u>meat</u>.
a4. She finally **ate** today, <u>it</u> was a small pinkie, but <u>it</u> was still food.
b1. I finally **ate something** today <u>that</u> filled me up.
b2. So I **ate something** today, I think it was the Salt & Vinegar Pirates Booty, <u>that</u> has resulted in everything since tasting BITTER!
c. So I **ate something** today and <u>it</u> had a rotten boiled egg in <u>it</u> and <u>it</u> almost ruined my life.

Thus, posterior elaboration (except the cases like c) does not seem to be an interferer. In

contrast, only *something* is capable of taking posterior modification, or modification by a relative clause, as in (b1, b2). Example (c), though superficially showing posterior elaboration, differs from examples (a). Whereas *today* in (a) modifies *ate* (often with an implication of no eating before today), *today* in (c) modifies *ate something* and contrasts what I ate today with what I have eaten previously; in other words, *something* in (c) introduces the different (or abnormal) food I ate today. In fact, all instances of modification (examples (b)) use *something* in this introductory sense, and (c) is fully equivalent to the modified form "I ate something today *that* had a rotten boiled egg..." Such use of *something* clearly differs from zero object, and the selection of SC here can be attributed to the need for modification and introduction rather than to effect orientation; thus, all SC instances with such uses are excluded.

5.2.2 Specific use

Portner (Portner & Yabushita 2001: 286) explains that "specificity involves cases in which the speaker 'has a particular individual in mind'", an individual whose knowledge is shared by the discourse participants. Both zero objects and *something* may be in specific use. For instance, in ((35)a) *somebody* in fact refers to a baby crying in the next room, and in (b) *someone* obviously refers to *you*. Here the speakers use an indefinite pronoun rather than a personal pronoun in order to create the rhetorical effect of deliberate ambiguity, which implies that the referent does not necessarily have to be the specific individual in the current context.

(35) a. If *somebody* doesn't get his dipers changed, we'll never get to sleep. (Portner 2001: 286)
b. *Someone* broke into my office and left me this! I will find you! :) (Google)

Examples ((36)a) are cases of specific use of *something* found in our data:

(36) a1. I just cannot eat. Because of that when I felt like eating popcorn I ate it just so I **ate something** today.
a2. i ate a honey bun this morning. and some crackers and a couple bites of shreded cheese and made some french fries this aftenoon . so i **ate something** today.
b1. the food was very delicious and I **ate** today
b2. Wes grilled up some of his awesome jalepeno sliders for everyone, and even though I was incredibly full, I **ate** again.

Hence, *something* in specific use differs from zero object. True, zero object can refer to a previously mentioned referent as in (b), an example from our data (see also (23). However, *something* in specific use is definite (determinate) in reference while creating deliberate ambiguity, zero object is indefinite (indeterminate) in reference as explained in 4.1.2. The deliberate ambiguity in examples (a) emphasizes the randomness of the food—the fact that what I ate could have been any food—while such an emphasis is absent in (b), which reports an occurrence of eating with a plain (though indefinite) contextual referent. The choice of SC with *something* in specific use is likely to reflect this difference, so all such cases of SC are excluded.

Even when in its normal, non-specific use, however, *something* cannot be fully generic: it still means something particular although its identity is unknown, and this makes it generally unsuitable for generic statements, as indicated by the zero frequency for SC in the ZS ratios of examples ((37)a) (unfiltered):

(37) a1. I always eat [0/something] well = 248:0
a2. I always eat [0/something] quickly = 21:0
b. I always eat [0/something] before bed = 52:13

Something in (b) is fine although it is a generic statement because what I always eat before bed may well be some particular set of food items rather than any generic food, and this is indicated by the nonzero score for SC. In generic statements, then, zero object and *something* differ because only the former if fully generic. The choice of ZC over SC in generic statements systematically reflects this difference, which disqualifies all generic statements as test phrases.

5.2.3 Meal reference

Fillmore explains that *eat* can mean eating a meal or eating generic food "stuff":

> In their more generic intransitive uses, [eat and drink] designate simply the physical activity of eating stuff or drinking stuff: When my tongue was paralyzed I could not eat or drink. Yet in sentences We've already eaten / I've tried to stop drinking, each of these verbs has a more specialized meaning. In particular, EAT is used to mean something like 'eat a meal' – not merely 'eat something' and DRINK is used to mean 'drink alcoholic beverages' (Fillmore 1986: 96-97).

Rice (1988: 203) then notes that one may say *John ate something* rather than *John ate* "to

avoid the default reading ... that John ate a meal". Indeed, the meal reference of ZC and SC, where they refer to meal eating and non-meal eating respectively, seems to be reflected in the following ZS ratios (unfiltered):

(38) **a. Eating at meal time**
I ate [0/something] at noon = 92:9
I ate [0/something] at seven = 40:1
b. Eating at non-meal time
I ate [0/something] after school = 44:10
I ate [0/something] late last night = 88:14
I ate [0/something] at midnight = 78:16

The ZS ratios in phrases ((38)a) are much higher than those in phrases (b), and this must be directly related to the fact that the instances of phrases (a) mostly talk about meal eating, and those of phrases (b) mostly talk about non-meal eating or 'meal-neutral' eating (eating without reference to a meal - see below). The high ZS ratios of phrases (a) reflects the fact that the ZCs express meal eating and their patient-oriented counterparts (*ate lunch, ate dinner*, etc) are not included in the ZS ratio, as explained in 5.1.3. The fact that ZCs occupy a large proportion in phrases (b) can be explained by saying that many of the ZCs here express meal-neutral eating. Test phrases with location also seem to express meal eating in most cases:

(39) a. We ate [0/something] at McDonald's = 299:10
b. I ate [0/something] at home = 335:32

ZC and SC do not always make reference to a meal or non-meal, however. The ZCs in examples ((40)a) do not refer to meal or non-meal, and examples (b) specify a meal after ZC, which means that the ZC itself does not express eating a meal. These instances seem to bring exclusive focus to the food eaten (Fillmore's 'stuff'), which makes the distinction of meal and non-meal irrelevant; thus, eating a meal or non-meal is not part of what they express.

(40) a1. ate then throw up then **i ate** again then throw up im 11 weeks pregnant.
a2. Hi, the other day I was so stressed that I didnt eat for a full 28 hours. But after that, I **ate** again, but just a <u>small amount</u>.
a3. One time I had a large lunch at 12 PM and then after coming home from work at around <u>3 PM</u>, I **ate** again.
a4. I **ate** today ... when you mom & dad bring home <u>ice-cream and oatmeal cookies</u> ...

you know you can't help it.
b1. I **ate** again for lunch. No wonder I'm not losing weight!
b2. We ate lunch, then ended up staying the whole day. By the time I **ate** again — at dinner — it was I0:20 p.m., and I was quite hungry.

Likewise, the SCs in (41) clearly do not refer to non-meal as Rice suggests because they occur in meal contexts, nor do they refer to a meal by themselves:

(41) a. i **ate something** today my first dinner since Friday
b. But i **ate something** today for lunch and i was pissed.
c. I normally skip breakfast but I **ate something** today
d. i finally **ate something** today for breakfast after speaking with docs
e. I finally **ate something** today... cause I haven't been able to eat for like a week I ate a whole sandwhich and fries for dinner

Thus, meal reference is again absent here. I would like to call such uses of ZC and SC **meal-neutral use**. Meal-neutral ZCs and SCs simply refer to food stuff, and can appear freely in meal or non-meal contexts without referring to a meal or non-meal. We may say, then, that in meal-neutral use zero object and *something* are equivalent and exchangeable (other things being equal). Instances of meal reference, however, will not be excluded because it is often difficult to distinguish those in meal-reference use and those in meal-neutral use. Our data analysis, then, will have to accept and reflect the presence of meal reference in the data.

5.2.4 The quantity and variety of food

The meal/non-meal contrast may lead to the view that only zero objects may refer to a large quantity of food or multiple food items. However, examples (42) show that the difference in this regard may not be significant: zero objects may express a large amount or small amount, and *something* may express a large amount and multiple food items.

(42) ANYWAY I **ate** today. alot, actually. chocolate cheerios ... salad and broccoli.
But I **ate** today. Alot...and still kinda feel ok a few hours later.
But after that, I **ate** again, but just a small amount.
I finally **ate something** today. And I went crazy. Like 3 sandwiches.
I finally **ate something** today - sweet potato baked fries and 2 fat free hot dogs no bun
I never drank soda just to drink it. I only drank it when I **ate something**, which was a lot, hence the weight loss surgery.

Thus, (43) shows that both zero object and *something* may be used to express eating a

substantial or large amount of food in contrast with previous small eating:

(43) I finally **ate** today, but literally had nothing at all yesterday and only had something really small the day before.
I finally **ate something** today. All I had yesterday was a banana.
I finally **ate something** today. In the last three day all i've had is a peanut butter and jelly sandwich and about 6 pretzels. Not a nutritious diet at all.

5.2.5 Telicity

Telicity is closely associated with object omission (Olsen & Resnik 1997; Mittwoch 1982; Velasco & Munoz 2002; DeLancey 1987: 61; Levin 1993: 33 - 'activity verbs'; Dixon 1992: 288). It is well established that ZC and SC strongly tend to be atelic and telic respectively (see also 3.2.1). Thus, the challenge is that our data test results may really be about telicity rather than about effect orientation—that is, ZS ratios may vary across the controlled contexts because they favor atelic or telic event construal rather than actor-Bearer or patient-Bearer construal. First of all, the distinction between telicity and effect orientation should be kept clear. Our event structure scheme (3.2.1) has shown that actor-Bearer events can be telic (*die*) or atelic (*sleep*), and also patient-Bearer events can be telic (*kill*) or atelic (*preserve*). Likewise, both unary and binary *eat* can be telic or atelic, although there is a default association of unary-atelic and binary-telic. Telic unary *eat* [S Change S to <state: done eating>] is an event where the eater changes from the state of not having eaten to a state of being done with eating, while atelic binary *eat* [S Maintain O in <state: be eaten>] is an event where the eater maintains the food in a state of being eaten.

However, the default association is unary-atelic and binary-telic. Thus, the following statements without any context are likely to be understood in default telicity, that is, ((44)a) as atelic and (b) as telic. Mittwoch (1982: 118) says that in (b) "the process of eating peanuts or porridge is viewed as having come to an end":

(44) a. He ate.
b. He ate peanuts/porridge. (Mittwoch 1982: 118)

Furthermore, according to Mittwoch, the inference in ((45)a) is valid, whereas that in (b) is not because of the difference in telicity:

(45) a. John was eating --> John ate.
b. John was eating something --> John ate something.

She explains the default association by saying that *something* is delimited in quantity while zero object is not:

> *Eat* is an "activity" predicate, whereas *eat something* is, as I shall demonstrate, an "accomplishment" (114). ... Since *something* is usually considered to be a quantified NP, the "accomplishment" nature of *eat something* is hardly surprising (Mittwoch 1982: 115).

However, “peanuts/porridge” is not quantified and yet ((44)b) understood as telic. This suggests that the default telicity association of ZC and SC has more to do with their event structure than with the difference between zero object and *something*. This association can be explained as follows: First, telic events include within view a further step (i.e., completion) from atelic interaction between actor and patient (R. Hovav and Levin: complex event), and when actor action expresses the effect, the further step is not taken into view unless this is necessary. On the other hand, when patient expresses the effect, it is more natural to see the patient as completely affected unless otherwise specified.

However, it is not uncommon for ZC and SC to be used in non-default telicity. For instance, in (46) the clear switch in telicity from (a) to (b) makes no difference in constructional preference (“*” represents a wild card in Google search):

(46) a. ate [0/something] for * minutes = 276:7
b. ate [0/something] in * minutes = 256:3

The high ZS ratio of (b) despite its being telic seems to be based on its actor-Bearer orientation and/or meal reference; here telicity is overridden by effect orientation and meal reference in constructional choice. (47) provides further cases where telicity is overridden in constructional choice:

(47) a1. He ate [0/something] quickly = 238:10
a2. We ate [0/something] and went to bed = 135:15
a3. He ate [0/something] and left = 59:0
b1. Finally eating [0/something] today = 43:30

In (b1) achievement events are explicitly atelic. Here SC scores similar, though lower, frequency to ZC. This clearly shows that what attracts SC in achievement contexts is patient-Bearer construal, not telicity, for, if it were telicity that attracts SC in achievement, the SC frequency should be zero in (b1). The fact that here SC scores lower than ZC can be

explained by saying that achievement also allows actor-Bearer construal, and in this case the strong, explicit atelicity produces a strong push for actor-Bearer construal; while achievement does not directly influence telicity construal, telicity can influence effect orientation construal.

When telicity is overridden in constructional choice, I suggest that ZC and SC are seen as telically non-distinct (with zero object and *something* becoming identical) and thus as able to express either telicity. This shows that in terms of telicity ZC and SC are not as distinct as has been supposed, and their default telicity association is often ignored in favor of effect orientation, meal reference, and/or specific reference. We may explain this by saying that the fact that both ZC and SC can express either telicity makes telicity irrelevant at the stage of constructional choice, which is made by factors such as effect orientation, meal reference, and specificity. (48) provides further cases of non-default association from the research results, where ZC encodes events that are likely to be telic (a, b) and SC encodes an event that could be seen as atelic (c):

(48) a. ANYWAY I **ate** today and didn't feel really sick afterwards! I burped a bunch still, which happens with gastritis, but no pain or sickness.
b. I finally **ate** today and kept it down!
c. So I **ate something** today and I didn't even gag while I did it.

The default association, then, plays a role *after* the construction is chosen: ZC is understood as atelic and SC as telic, unless there are contextual and/or textual indications to the contrary as in (47) and (48). As such, telicity cannot be semantic factor.

5.3 Data processing

5.3.1 Data retrieval

The Web searches for the data were performed on Google between 23 Nov 2013 and 18 Jan 2014. Search engines provide two different frequencies for a search: a huge one appearing in the first result page and a much smaller one appearing in the last result page. The second frequency matches the actual number of instances provided by the engine; the first one seems to be extrapolated from the second one through some complicated algorithm and is often grossly inaccurate. I have pointed out in Eu (2008) that search engine

frequencies are often inconsistent. Here I recommended using Yahoo for more consistent frequencies and certain guidelines for minimizing inaccuracy in search engine frequencies. However, in this work I was not aware of the frequencies at the last result page, which matches the actual instances retrieved, and the guidelines provided concern the extrapolated frequencies. The present data test uses the actual (last page) frequencies. I have chosen Google over Yahoo and Bing because it tends to provide more instances with less 'retrieval errors' (see 5.3.2).

All instances of the main test phrases except **I ate again** were obtained directly from the Web, filtered, and classified into Choice/Barrier and their subcategories. In the case of **I ate again**, there were too many instances to process: 327. Thus, only the first 65 (20%) of its instances were directly obtained, filtered, and classified, and the total number of instances and the numbers for the categories were calculated by multiplying the directly obtained numbers by 5.

There was some difficulty in getting search results for TP2, however. Its direct search generated the following hits:

I ate [0/something] today = 153:78

In the result for **I ate today** (almost) all hits were relative clause noise *what I ate today*, showing that the prevalence of this noise in the result distorts the true frequency of the true, non-relative-clause instances. Thus, instead of this phrase, I used several extended phrases with a semantically neutral noise block, shown below, and added up their frequencies for TP2. The frequencies for each phrase pair are provided in Table 1.

anyway I ate [0/something] today
by the way I ate [0/something] today
and I ate [0/something] today
but I ate [0/something] today
so I ate [0/something] today

Table 1: Frequency distribution for TP2 (filtered)

Test phrases	ZC	SC	ZC - Cho	SC - Cho	ZC - Barr	SC - Barr

anyway I [ ] today	7	0	3	0	4	0
by the way I [ ] today	6	0	5	0	1	0
and I [ ] today	14	9	13	1	1	8
but I [ ] today	10	5	8	2	2	3
so I [ ] today	8	5	7	1	1	4
Sum	45	19	36	4	9	15

5.3.2 Filtering and presentation

Filtering excluded from the frequency count the instances falling under one or more of the following categories:

Retrieval errors
- Noise
- Repetition
- Text unavailable: The actual text of the instance cannot be found when the link is followed.
- Unclear/not enough context: There is not enough information from the context provided by the engine to determine the classification of the instance. Often twitter messages appear with little context.

Semantic issues
- Post modification / Introductory use of *something*: semantic factor
- Specific use of *something*: semantic factor
- Location: Instances expressing eating location are excluded as an effort to make the contexts more even in terms of meal reference (see 5.4.5).
- Extra action emphasis: see below.

Some instances of neutral phrases contained action emphasis, for instance:

(49) [manner] Here is *how* Kevin (and I) **ate today**
[manner] oh and i **ate today** like u told me to
[action list] I cried today. I laughed today. I slept and I **ate today**. It was a good day.

In this case the constructional choice is driven by the action emphasis rather than by the semantics of the context. These cases were eliminated in order to ensure the full influence of the target semantics. The filtered and classified instances are provided in the Appendix. In each instance the part that serves as the basis of its classification or filtering is underlined.

Some instances are provided with notes on the basis of their classification or filtering.

5.4 Controlled contexts and constructional preferences

5.4.1 Preliminary test phrases: action emphasis

The following unfiltered frequencies were obtained for the phrases that have been accepted as preliminary test phrases after the consideration of the semantic factors:

Manner
a. I ate [0/something] quietly = 133:0
b. I ate [0/something] in a hurry: 53:0
c. I ate [0/something] cautiously = 51:0
d. I ate [0/something] peacefully = 40:0
e. I ate [0/something] violently = 22:0
f. I ate [0/something] alone = 333:2
g. I ate [0/something] slowly = 317:4
h. I ate [0/something] quickly = 261:44

Action list
i. He ate [0/something] and left = 59:0
j. We ate [0/something] and went to bed = 135:15

Most of the phrases show very high frequencies for ZC and zero frequencies for SC. The non-zero frequencies of (h, j) seem to reflect their telicity, which encourages patient-Bearer construal. Those small SC frequencies will be even smaller after filtering, because our discussion of semantic factors has shown that all exclusions occur only in SC instances, and especially the posterior modification of *something* normally accounts for nearly half of the SC instances. Even granted that a large part of the ZC instances of these phrases express meal eating, still at least a good part of them should be meal-neutral (focusing on the manner of eating with no reference to meal, for instance), and against the zero or near-zero frequencies of SCs they provide preliminary evidence for the dominance of actor-Bearer orientation in these phrases. The evidence is only preliminary because the single-structure hypothesis can explain them simply by saying that most of the ZCs did not take an optional argument.

5.4.2 Main test phrases: controllers and event types

The following phrase pairs have been selected as the main test phrases (**TPs**) for our data test, to generate the controlled contexts where variation in constructional preferences is measured:

TP1: I ate [0/something] *again* = 327:45 (raw) --> 220:27 (filtered)
TP2: I ate [0/something] *today*
TP3: I *finally* ate [0/something] today

Each TP has a controller that determines its event semantics. In TP1, *again* brings out action emphasis through repetition. In TP2, *today* is neutral because it does not describe how the action is performed or add a sense of achievement. In TP3, *finally* imbues the context with a sense of achievement. On the other hand, the instances of each phrase pair are divided into two **event types**: **Choice**, where eating is seen as a matter of choice, and **Barrier**, where eating is seen as a result of overcoming a certain barrier or difficulty for food consumption. Choice emphasizes actor-Bearer construal by bringing attention to the volition (self-causation) and action of the eater, while barrier removal emphasizes patient-Bearer construal by bringing a sense of achievement in food consumption. In all, the three TPs (controllers) combine with the two event types to create six different controlled contexts: **1C** (TP1+Choice), **1B** (TP1+Barrier), **2C**, **2B**, **3C**, **3B**.

The success of the data test crucially requires that the instances be similar within the Choice category and within the Barrier category and clearly distinct across the Choice and Barrier categories. In order to show this, each category was subdivided into the subcategories shown in Table 2.

Table 2: Subcategories in controlled contexts

	Choice	Barrier
TP1	Context 1C (Appendix 1.1.1, 1.2.1) • Controlled eating: successful / going as planned • Controlled eating: unsuccessful • Circumstantial barrier • Eating for special purpose	Context 1B (Appendix 1.1.2, 1.2.2) • Pregnancy • Physical hardship • Mental hardship

	• Daily happening	
TP2	Context 2C (Appendix 2.1.1 ~ 2.10.1) • Controlled eating: successful / going as planned • Controlled eating: unsuccessful • Circumstantial barrier • Eating for special purpose • Daily happening	Context 2B (Appendix 2.1.2 ~ 2.10.2) • Pregnancy • Physical hardship • Mental hardship
TP3	Context 3C (Appendix 3.1.1 ~ 3.2.1) *Finally*: eating after a gap • Controlled eating: successful / going as planned • Controlled eating: unsuccessful • Circumstantial barrier	Context 3B (Appendix 3.1.2 ~ 3.2.2) *Finally*: eating after a gap • Pregnancy • Physical hardship • Mental hardship

Each context indicates the Appendix location where the instances and subcategories can be found. Each subcategory is explained with representative examples in the following subsections. The Choice subcategories describe different ways in which the eater exercised her Choice, while Barrier subcategories correspond to the three types of Barrier found in the data. In TP3, because of the word *finally*, all its instances express an eating gap, which means an interval that is significantly longer than normal. First explaining the Choice subcategories, “Controlled eating” means that the eater tried to control her eating for various reasons, the main one being weight watch, and the eating took place either as part of (or after) successful control (“Controlled eating: successful / going as planned”) or through a failure to maintain the control (“Controlled eating: unsuccessful”), for instance, by giving in to the temptation of food. “Circumstantial barrier” means a barrier against eating that has to do with the circumstances of the eater rather than to her ability to consume and ingest food, and it includes being too busy, laziness, poverty, and heavy snow. Circumstantial barriers belong to Choice for the reason provided below. In this subcategory the eating took place after the eater had overcome a circumstantial barrier. “Eating for special purpose” means that the eating took place for special purposes like maintaining blood sugar level, in a game, or as part of a special eating event. Finally, “Daily happening” means that the eating took place simply as part of what happened by Choice during the day. This category absorbs all instances where there is no indication of eating control, circumstantial barrier, or special purpose.

The capitalized terms *Choice* and *Barrier* are used in our study in specialized senses, which need explaining. In order to make sure that Barrier overcoming induces patient-Bearer construal, the Barriers in our classification are limited to the obstacles against food consumption, such as those Barrier subcategories, and circumstantial barriers, exemplified in (50), are not considered Barriers because they are obstacles against the access to food rather than against its consumption:

(50) a. I didn't know that 36 hours would pass before I **ate again**. I later learned that the road had been closed due to the heavy snowfall.
b. I have exactly zero dollars and I **ate today** for the first time in two days.
c. it's because I've been soooo busy and not eating or getting any sleep. I **finally ate today**, but literally had nothing at all yesterday and only had something really small the day before.

Overcoming circumstantial barriers is an achievement not in food consumption but in fighting the circumstances; hence, it is unlikely to generate any special inducement for patient-Bearer construal. The term *barrier* with a small-*b* will be used to include Barriers with a capital-*b* (against food consumption) and circumstantial barriers. On the other hand, Choice is not defined by the common notion of *choice* but rather as the absence of a Barrier—in the sense that one can eat just by deciding to do so and there is no Barrier against it. Hence, although overcoming a Barrier is in fact an act of choice, it is not a Choice in our classification. Also, eating caused by temptation against the eater's wish is still Choice because the presence of a temptation means the absence of a Barrier (there is no temptation to eat when one is too sick to eat). Likewise, the cases of circumstantial barrier are Choice as long as no Barrier is mentioned.

5.4.3 Choice contexts

Turning to the main test phrases, we will first examine each of the six contexts with their instances. Efforts were made to find for each subcategory one ZC instance and one SC instance where the zero object and *something* are semantically equivalent. Most of the instances provide clear clues (underlined) for the subcategories and also for Choice (absence of Barriers). The instances of context 1C are exemplified in (51):

(51) **Controlled eating: successful**
a. Here's what I think lead to my two-pound loss... 2. I **ate again** (the brunch) before

completely digesting the carrot sticks. That kept my metabolism running the whole time.
Controlled eating: unsuccessful
b1. Yesterday I **ate**….**again**! ... I told myself that I'd fast … But, right after I woke up I went to the kitchen and my mum had cooked some pasta…
b2. Oops, I **ate something again**... Yes, I had to restart my fast again.
Special purpose
c1. Okay Sunday I **ate again** late so I ate a piece of cold pizza ... Monday Blood Sugar was 130. ... This Morning BS IS UP 198. And funny thing is I feel good.
c2. In my case...say if I were to eat pancakes for my first meal, I had better be eating again within 3 hours or risk it crashing again because the sugar I would intake would cause it to spike and then go back down quick....as long as I **ate something again** (doesn't have to be much) within say 3 hours I would be fine ...
Circumstantial barrier
d. At 6 p.m. I sat there, hoping that someone would come along and thankful that I had eaten lunch at Boston Bar. I didn't know that 36 hours would pass before I **ate again**. I later learned that the road had been closed due to the heavy snowfall.
Daily happening
e1. The next day, I **ate again** before we left for the supermarket, and yes I ate again the Kangkong and Sitaw.
e2. We get over the nasty hills and stopped again to regroup. I **ate something again**, as I was really hungry.

In 1C a large majority of the instances of "Controlled eating" are unsuccessful. This category shows a clear contrast with Barrier because here there was a strong push toward, rather than a Barrier against, the eating, and the eating control was the only thing that was preventing it. Many instances of "Special purpose" are uttered by diabetics who must eat at regular intervals to maintain their blood sugar level. It also includes eating by a game character and eating as part of "food journey".

Our data has many instances of regular eating and blood sugar watch necessitated by diabetes or hypoglycemia. Although our general policy is to classify eating by sick people into Barrier, the cases of blood sugar watch were not automatically classified into Barrier because diabetes and hypoglycemia do not always pose difficulty for food consumption. For instance, in ((51)c) and ((52)a) the speaker does not seem to be having difficulty with eating. These cases are classified as Barrier only when the disease poses difficulty for eating, as in ((52)b):

(52) a. [Choice] Okay Sunday I **ate again** late so I ate a piece of cold pizza (i like it cold the next day) with my coffee. The I went out to the store and I ate about 4:00pm More pizza & bar-be-que wings and one bread stick and soda. Monday Blood Sugar was130. ... This Morning BS IS UP 198. And funny thing is I feel good.

b. [Barrier] I was chronically fatigued. I suffered from low blood sugar and I ate constantly. I would become nauseous, dizzy and felt like I was going to pass out until I **ate something again**!

The instances of context 2C are exemplified in (53):

(53) **Controlled eating: successful**
a1. Fasting four days and I **ate today**.
a2. <Ok so I **ate something today**> After four days of fasting I finally ate something.
Controlled eating: unsuccessful
b1. i was doing so great on my coffee flush diet, but then idk [i don't know] what happened and i **ate today**.
b2. But i **ate something today** for lunch and i was pissed.
Special purpose
c. I eat non stop. If I don't, my sugar will dramatically drop like it did today… But I **ate today**…
Circumstantial barrier
d. I have exactly zero dollars and I **ate today** for the first time in two days.
Daily happening
e1. i **ate today** and like an hour later i was hungry again my stomach is kind pregnant,looking
e2. A: TPBM [The person below me] skipped breakfast today. B: False I normally skip breakfast but I **ate something today**.

Many instances of "Daily happening" talk about the menu of today's eating. Example (e1) occurs in contexts where the speaker is wondering whether she is pregnant, and there is no mention of mental or physical hardship.

The instances of context 3C are exemplified in (54):

(54) **Controlled eating: successful**
a1. AND congrats on the weight loss! I **finally ate something** today - sweet potato baked fries and 2 fat free hot dogs no bun... so that's healthy...
a2. ANY food... triggers the urge to binge lately. So I feel like a few days of abstaining as much as possible certainly can't hurt and maybe will help me get a handle on things. By the time I **finally ate today**, I was feeling a little nauseous. That's a good thing... makes me not want food...
Controlled eating: unsuccessful
b1. I'm fatter than ever. I **finally ate** today. A little piece of meat. I feel so guilty.
b2. A: Yay for eating and resisting the temptation. / B: i **finally ate something** today. i feel really i guess guilty about it
Circumstantial barrier
c1. I **finally ate** today. And I got some sleep... Eh. Tomorrow are my least two favorite finals.
c2. I was too lazy to feed myself, for a long time. ... When I **finally ate** today, it was five

and I made grilled cheese.
c3. I **finally ate something** today.. and I brushed my teeth.. acomplishment, seeing as I never actually leave my room during weekends..

The circumstantial barriers here are being too busy (c1) and laziness (c2, c3). Here all instances express eating after a gap, and the eating control and circumstantial barrier provide the reasons for the eating gap. This is in contrast to 3B, where a Barrier is the reason for the eating gap. Subcategories "Special reason" and "Daily happening" do not appear in 3C because they do not lead to an eating gap. In all, eating after a gap does not make the instances differ from those above in terms of the Choice exercised.

5.4.4 Barrier contexts

In all instances of Barrier the speaker overcomes pregnancy, physical hardship, or mental hardship to achieve eating. She just wants to eat and there is no eating control. The instances of context 1B are exemplified in (55):

(55) **Pregnancy**
a1. i ate then throw up then i **ate again** then throw up im 11 weeks pregnant.
a2. I also drank little bits of fluid at a time. Each time I vomited I **ate something again** and tried to drink a little bit of water.
Physical hardship
b1. I **ate again**... I ate chicken last night and it stayed down AND didn't try to kill me!!!!
b2. I **ate something again**. ... She's acting normally and not vomitting or diarrhea.
b3. Once I just ate a yogurt and then my multivitamin and I was so nauseous until I **ate something again**.
Mental hardship
c. Hi, the other day I was so stressed that I didnt eat for a full 28 hours. But after that, I **ate again**, but just a small amount. I felt like I was goin to vomit.

Although (b1) does not explicitly talk about the Barrier, it clearly implies there had been one, because of which the food did not "stay down" and tried "to kill me". The same applies to (b2) as well as to all other similar instances below. In (b2) the writer writes about her recovering dog by impersonating it; thus, both *I* and *she* in fact refer to the dog. Some instances of physical hardship feature temporary Barriers rather than sickness. For instance, in (b3), the speaker took multivitamin in almost empty stomach (only with yogurt) and got nausea, which posed a Barrier. Context 1B has many cases of "Eating for special purpose", where eating at short intervals is required because of sickness such as hypoglycemia and

multiple sclerosis, and the sickness makes the eating difficult.

The instances of context 2B are exemplified in (56):

(56) **Pregnancy**

a1. I lost 10 lbs so far. I would be losing more if the silly baby would let me eat without wanting to puke at the thought of food. ... But I **ate today**. Alot...and still kinda feel ok a few hours later. Hoping this is the beginning of better days rather than a fluke.

a2. All day today I've been having small dizzy spells, and I **ate something today** and right after I ate it about came up. I'm hungry, but everytime I even think about food I feel sick. I haven't vomitted but I feel it coming on.

Physical hardship

b1. ANYWAY I **ate today** and didn't feel really sick afterwards! I burped a bunch still, which happens with gastritis, but no pain or sickness.

b2. I am pretty sure I have developed an eating disorder since my grandfather died ... I'm never hungry anymore so i dont eat anymore and I **ate something today** and threw it back up which is wat happens all the time

Mental hardship

c1. Anyway. I **ate today**. I'm in the middle of an epic depressive episode (blehfghaaa) and food is disgusting

c2. I still love him, this broken heart thing is so hard and i'm not even a week into it yet. ... Oh yea and i **ate something today** my first dinner since friday.

In all these instances the presence of a Barrier seems clear. The physical hardship in context 2B includes multiple sclerosis, lack of appetite caused by smoking, eating disorder, painful tongue, painful hands, and weight watch anxiety.

The instances of context 3B are exemplified in (57):

(57) **Pregnancy**

a1. i **finally ate** today after days of not being able to keep anything down ... Days like this make me love my baby.

a2. I love that stuff! I **finally ate something** today without wanting to puke!

Physical hardship

b1. I **finally ate** today and didnt throw up :) i'm proud of myself.

b2. I **finally ate something** today... BARELY... and I haven't thrown up in at least 24 hours I think.

Mental hardship

c1. I **finally ate** today. I haven't really been hungry for a while, ever since.... well, you, died. I can't get it out of my mind...

c2. Still shaken and I **finally ate something** today, still I think all day since this incident about what happened. I know he got the brunt of injuries, and I do feel deeply bad for all this.

Again, the presence of a Barrier is clear in all these instances. Physical hardship also includes

food poisoning, hysterectomy, gastritis, flu, viral infection, and lack of appetite. Mental hardship has three instances expressing broken heart.

5.4.5 Main test phrases: data analysis

Our test has obtained the following frequencies and ZS ratios for the main test phrases:

Table 3: Frequency distribution for main test phrases

Test phrases	ZC	SC	ZC - Cho	SC - Cho	ZC - Barr	SC - Barr
TP1: I ate [ ] again	225	22	195	7	30	15
ZS ratios		10.23		27.86		2
TP2: I ate [ ] today	45	19	36	4	9	15
ZS ratios		2.37		9		0.6
TP3: I finally ate [ ] today	22	41	11	10	11	31
ZS ratios		0.54		1.1		0.35

The ZS ratios for the controlled contexts can be reproduced as follows:

Table 4: ZS ratios for controlled contexts

	Choice	Barrier
TP1	27.86	2
TP2	9	0.6
TP3	1.1	0.35

These ZS ratios confirm our dual-structure hypothesis by showing dramatic differences across the contexts. In Table 4, any rightward (Choice to Barrier) or downward (TP1 to TP3) movement decreases the ZS ratio, and any leftward or upward movement increases it. This is explained by saying, on the one hand, that the rightward and downward movements increase the strength of patient-Bearer orientation, while the leftward and upward movements increase that of actor-Bearer orientation; and, on the other, that ZC and SC respectively represent unary (actor-Bearer) and binary (patient-Bearer) event structures when the zero object and *something* are semantically equivalent. To explain the roles of the

controllers in changing the effect orientation, *again* in TP1 promotes the construal of the eating events in action emphasis, thereby strengthening actor-Bearer orientation for the context. In TP2 effect orientation is purely determined by the event type (Choice vs. Barrier), as *today* is neutral. In TP3 the word *finally* strongly implies and highlights the presence of a barrier against eating and overcoming of it, and thus a strong sense of achievement. Thus, in context 3B, *finally* seems to bring out the presence of the Barrier much more acutely than in context 2B, bringing greater attention to the achievement and food consumption and strengthening patient-Bearer orientation even further. On the other hand, in context 3C *finally* highlights the circumstantial barriers as well, but as explained in 5.4.2 overcoming them does not lead to patient-Bearer construal. However, 3C has another major subcategory: eating control. I suggest that in introducing the idea of eating gap, *finally* turns what was responsible for the gap into a barrier—that is, the eating control. Eating control is a prohibition of food consumption (for a certain period), and so when this turns into a barrier it must be seen as a Barrier rather than a circumstantial barrier. This, then, (partly) explains why 3C is stronger in patient-Bearer orientation than 2C.

Before declaring the dual-structure hypothesis as confirmed, however, we need to deal with the presence of meal reference in the data and see whether the semantics of the above contexts does not influence the prevalence of meal reference, for the single-structure hypothesis may well attempt to explain the leftward and upward rises of ZS ratios by saying that the leftward and upward contexts contain more meal reference. As for the controllers, I do not see how the instances of *again*-phrase may contain more meal eating than the neutral phrase instances, and how the latter may contain more meal eating than the *finally*-phrase instances: *finally ate [0/something] today* seems suitable for meal talk just as much as *ate [0/something] today*, and *[0/something] today* seems suitable just as much as *ate [0/something] again*.

However, there is a valid reason for supposing that the Choice contexts may contain more meal reference than the Barrier contexts: in Barrier contexts what is eaten after overcoming a Barrier is likely to be a small amount of food rather than a full meal if the eater still has a limited ability to consume food, and the Choice contexts is free from this restriction. Nevertheless, the semantics of the Choice subcategories suggests that the difference cannot be so large. The Controlled eating, Circumstantial barrier, and Eating for special purpose are

more likely to focus on eating itself rather than eating a meal; in most of their instances, what matters is that eating took place at all after a period of control, over a circumstantial barrier, or for a special purpose, and not whether it is a meal or not. In other words, a majority of the eating events are likely to be meal-neutral as illustrated in 5.2.3. By contrast, Daily happening is a subcategory that may indeed contain a lot of meal reference. Especially, the instances that talk about eating locations are likely to express meal eating:

(58) On my southern AZ swing I **ate again** at Wisdom's Café.
My wife and I **ate today** at Newk's in Flowood.

Daily happening exists only in 1C and 2C, and this seems to explain why the ZS ratios of the 1C-2C block (27.86, 9) are so much higher than the rest of the contexts. Nevertheless, this subcategory does not provide a sufficient reason to invalidate the horizontal movement of ZS ratios as evidence for dual structure. First, Daily happening contains all instances that are not specified for eating control, circumstantial barrier, or special purpose; thus, at least some of the Daily happening instances may in fact be members of the latter categories whose true membership is just not specified. Furthermore, the instances expressing eating location were excluded from the frequency count in order to reduce the amount of meal reference in Daily happening. These factors limit the ability of Daily happening to increase the ZS ratio independently of effect orientation. Second, Daily happening has 50 (10x5) ZC instances in 1C and 17 ZC instances in 2C, which respectively account for 26% of the ZC instances of 1C (195) and 47% of the ZC instances of 2C (36); thus, even if all ZC instances of Daily happening were removed from 1C and 2C, their ZS ratios would still be many times higher than their neighboring contexts.

Conclusion

We began our discussion by noting the inadequacy of the multi-feature approach to transitivity and proposed a model of transitivity based on the notion of events as single impacts: semantic intransitivity is defined by actor-Bearer events, and semantic transitivity is defined by patient-Bearer events. This clearly reveals the unifying notion of transitivity and also restores the valency-based definition, which is in iconic sync with syntactic transitivity. Effect orientation is a novel concept, and it will take much more research for it to be validated and accepted. However, I believe the present thesis has identified some grounds for its validity in terms of the selective specification and dual event structure of *eat*. In my view transitivity has not played as central a role in linguistic analysis as it deserves, and this is likely to be due to the difficulty in ascertaining the meaning of transitivity. It remains to see how the new definition of transitivity and the notion of effect orientation can be fruitfully used in future linguistic research.

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