Introducing Arguments

by

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ABSTRACT

Verbal arguments can be divided into two different types: those that are true arguments of the verb and those that are "additional" in the sense that there is evidence that they do not belong to the basic argument structure of the verb. Theories of argument structure are largely theories about how these additional arguments are introduced, but at present few such theories propose explicit mechanisms for deriving crosslinguistic variation in argument expression. This thesis develops a tightly constrained universal system of functional units and argues that crosslinguistic variation arises either from differences in the inventory of units that a language selects for or from the way a language groups the universal units into syntactic heads. The core system consists of three different types of causative heads, two different types of applicative heads and the external argument introducing head Voice (Kratzer 1994). The thesis shows that the properties of applicative constructions are such that they can only be predicted by a theory in which the external argument is also "additional", i.e. not a true argument of the verb.

Thesis Supervisor: Alec Marantz

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List of abbreviations

ABL	ablative
ACC	accusative
ADE	adessive
AGR	agreement
ALL	allative
APPL	applicative morpheme
arabic numerals	Bantu noun class markers
ASP	aspect
BEN	benefactive
C	complementizer
CAUSE	causative morpheme
CL	clitic
COND	conditional
DAT	dative
DEP	depictive head
DES	desiderative
ELA	elative
FEM	feminine
FOC	focus
FUT	future tense
FV	final vowel
GEN	genitive
INESS	inessive
INF	infinitive
LOC	locative
MASC	masculine
NOM	nominative
OP	object marker
PART	partitive
PASS	passive
PAST	past tense
PL	plural
PLAIN	plain (level of formality in the Korean honorific system)
PRES	present tense
REC	reciprocal
REV	reversive
SG	singular
SP	subject prefix
STAT	stative
TOP	topic

Acknowledgments

First and foremost, I wish to thank my advisor and good friend Alec Marantz, who has been a part of virtually everything I have done at MIT. Alec has had a tremendous impact on my thinking about linguistics and science in general and it is hard for me to imagine what going to MIT would have been like without him. Alec has the rare talent of being a mentor without ever telling you what to do, which is one of the most important reasons why I have enjoyed being at MIT so much.

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This thesis is purely theoretical but it could have just as well been an experimental thesis on my MEG research on lexical and morphological processing, the "second half" of my life at MIT. Since there will be no MEG thesis, I would like to take this opportunity to also thank those people who have been instrumental in my being able to engage in neurolinguistic research, which to me has been just as important as the theoretical research reported here. Again, all my experimental work has been carried out in close collaboration with Alec Marantz, and I wish to thank him for all the support and opportunities he has given me. Also, I wish to thank David Poeppel and Colin Phillips at the University of Maryland, who have in many ways been my "second advisors" when it comes to my MEG work. Thanks also to Andrew Stringfellow, our lab manager, with whom it has always been fun and fruitful to collaborate.

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Chapter 1. Introduction

1.1. The question of "non-core" arguments

A comprehensive theory of linguistic representations must minimally (i) define the nature of the primitive building blocks that enter into linguistic computation, (ii) characterize the manner in which the basic units combine into complex representations and (iii) identify the ways in which languages may differ with respect to their inventory of possible representations. This thesis aims to meet these requirements in the domain of verbal argument structure, focusing on the question of how arguments that are not, in a sense, "core" arguments of the verb get introduced into argument structures. For example, even though the English verb *melt* minimally only needs to combine with an argument describing an entity undergoing the melting, as in (1a), English grammar also allows the sentence in (1b), where the entity that melts is now the object of the sentence and the subject position is filled with a noun phrase describing a causer of the melting event. Further, it is possible to add yet another argument to this structure, as in (1c), where the new argument is realized as an indirect object and is interpreted as some type of a beneficiary of the melting event.

(1) ENGLISH
   a. The ice melted
   b. ***John*** melted the ice.
   c. ***John*** melted ***me*** some ice.

This type of argument structure variation is a pervasive property of human language; most languages have verbs that exhibit precisely the behavior illustrated in (1). For example, the data in (2) show that the Venda verb *melt* can appear in all the same environments as the English verb *melt*.

(2) VENDA
   a. Mahaḓa o-nok-a.
      snow 3sg.PAST-melt-FV
      'The snow melted'

   b. Mukasa o-nok-is-a mahaḓa.
      Mukasa 3sg.PAST-melt-CAUSE-FV snow
      'Mukasa melted the snow'

c. Mukasa o-nok-is-el-a Katonga mahaḓa.
Mukasa 3sg.PAST-melt- CAUSE-APPL-FV Katonga snow
'Mukasa melted Katonga the snow'

Given the similarity between (1) and (2), it is natural to hypothesize that the grammatical elements that allow for the variation in (1) and (2) are, in fact, the same. However, on closer inspection, this hypothesis proves hard to maintain as the inventories of verbs that allow the addition of causer and benefactive arguments are drastically different in English and in Venda. For example, in Venda these two types of arguments can productively be added to unergative verbs, as shown in (3), while this is impossible in English, (4).

(3) VENDA
a. Mukasa o-se-is-a Katonga
Mukasa 3sg.PAST-laugh-CAUSE-FV Katonga.
'Mukasa made Katonga laugh'

b. Mukasa o-amb-el-a Katonga
Mukasa 3sg.PAST-speak-APPL-FV Katonga
'Mukasa spoke for Katonga'

(4) ENGLISH
a. *Mary laughed Sue. (Intended meaning: *Mary made Sue laugh.*)
b. *Mary spoke Sue. (Intended meaning: *Mary spoke for Sue.*)

The explanation for the distributional difference can be of two sorts. One possibility is that the additional arguments in the two languages are introduced by different elements with different distributions, despite superficial similarities. Alternatively, it is possible that the elements allowing the addition of the new arguments in the two languages are, in fact, the same, and some other factor is responsible for the distributional difference. Distinguishing between these two types of explanations and articulating the properties of argument-introducing elements is the very essence of the present work.

1.2. Representing verbs and their arguments

The question of what grammatical elements are responsible for allowing non-core arguments to appear in argument structures cannot be investigated without making some basic assumptions about the representations of verbs and their arguments. In other words, we must have a hypothesis about what the representations are into which so-called "non-core" arguments can be added. In some very intuitive sense, verbs describe events in the world and verbal arguments name individuals that stand in some relevant relations to these events. However, even though most theories of lexical semantics aim to capture

this basic intuition in some way, the details of the representations vary widely from one researcher to another. A quick glance at the some of the leading works on lexical semantics and argument structure from the past few decades reveals a lack of agreement on the representation of just a simple unergative verb.

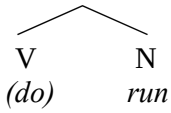
(5) a. Levin and Rappaport (1995): *run*: [x ACT $_{<RUN>}$]

b. Jackendoff (1990): *Bill walked into the room*
[$_{Event}$ GO [$_{Thing}$ BILL] [$_{Path}$ TO [$_{Place}$ IN([$_{Thing}$ ROOM])]]]

c. Pustejovsky (1995):

$$\begin{bmatrix} \textbf{run} \\ \left[\text{EVENTSTR} = [\text{E}_1 = \text{e}_1\text{: process}]\right] \\ \left[\begin{matrix}\text{QUALIA} = \text{AGENTIVE} = \text{run\_act}(\text{e}_1,\text{x}) \\ \ldots\end{matrix}\right] \end{bmatrix}$$

d. Hale and Keyser (1993):



Clearly then, even basic questions having to do with the representations of verbs and their arguments are still open, such as *what is the fundamental nature of lexical complexity*. Of the examples above, the lexical semantic representations in (a-c) are all different from the *syntactic* structures in which verbal arguments appear; these theories hold that the lexical entries of verbs are semantically complex in a way that differs from the complexity encountered at the sentential level. Given the difference, the theories cited in (a-c) must be accompanied by a theory that states exactly how the predicates and arguments in the lexical semantic representations map onto syntactic positions. Developing such *linking theories* has, in fact, been the main focus of argument structure research for decades. For example, in their seminal work *Unaccusativity*, Levin and Rappaport (1995) propose the rules in (6b, c) to account for the fact that the causers of eventualities are generally realized as the subjects of sentences and the individuals undergoing changes as the direct objects.

(6) a. *break*: [[x DO-SOMETHING] CAUSE [y BECOME BROKEN]]

b. *Immediate Cause Linking Rule*
The argument of a verb that denotes the immediate cause of the eventuality described by that verb is its external argument.

c. *Directed Change Linking Rule*
The argument of the verb that corresponds to the entity undergoing the directed change described by that verb is its internal argument.

In contrast to the theories where lexical complexity is considered to be of a different sort from syntactic complexity, a number of researchers today hypothesize that there is, in fact, no such difference

(Baker, 1988; Hale and Keyser, 1993; Marantz, 1997; Harley, 1995; Miyagawa, 1998; Borer 1994, 1998; Travis, 2000; etc.). In these theories, lexical semantic representations *are* syntactic representations and, consequently, no mapping problem arises. This eliminates the need for linking rules, which, in any case, are seldom more than generalizations over observed correspondences between argument positions and their interpretations.

The syntactic approach is not without its challenges, though; differences do exist between morphological constituents such as *joyful* in *joyfulness* and syntactic constituents such as *the girl* in *the girl ran*. One much discussed difference is that *joyfulness* exhibits "lexical integrity" (DiSciullo & Williams, 1987), i.e., it behaves as a unit in a way that *the girl ran* does not. For example, the morphological constituent *joyful* fails all traditional tests of syntactic constituency (such as extractability, conjoinability and so forth; see in particular discussion in Bresnan and Mchombo (1995) and Bresnan (1995)). Clearly then, syntactic theories of word formation must provide a theory about extraction, conjunction, and so forth, such that constituents that are dependent on other constituents within a phonological word cannot be targeted by them. However, on the basis of lexical integrity alone, it seems unwarranted to draw the strong conclusion that entirely different modules of grammar must be responsible for the construction of complex entities such as *joyfulness* as opposed to complex entities such as *the girl ran*. In the present work I will entertain the, to my mind, more interesting hypothesis that syntactic structure building is the only mode of structure building in natural language.

For the present purposes then, the assumption that word formation is syntactic means that the elements that introduce non-core arguments into argument structures must be syntactic heads. These syntactic heads combine with their complements and specifiers via the traditional modes of semantic composition, which I take to be Functional Application and Predicate Modification.

(7) a. FUNCTIONAL APPLICATION
If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughter's, and $[\![\beta]\!]$ is a function whose domain contains $[\![\gamma]\!]$, then $[\![\alpha]\!] = [\![\beta]\!]([\![\gamma]\!])$.

(Heim and Kratzer, 1998: 44)

b. PREDICATE MODIFICATION
If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, and $[\![\beta]\!]$ and $[\![\gamma]\!]$ are both in $D_{<e,t>}$, then
$[\![\alpha]\!] = \lambda x \in D_e. [\![\beta]\!](x) = [\![\gamma]\!](x) = 1$.

(Heim and Kratzer, 1998: 65)

Verbs in general will be taken to have neo-Davidsonian meanings, where the verb itself names a property of an eventuality (which I take to be a cover term for events and states, following Bach, 1981) and the syntactic arguments of the verb name event participants, i.e. individuals who stand in thematic relations to the eventuality (Parsons, 1990, building on work by Davidson, 1967, and Castañeda, 1967). In

this type of a framework, the meanings of sentences involve underlying quantification over events, as shown below (temporal relations are ignored here):

(8) *Brutus stabbed Caesar.*
(∃e) [stabbing(e) & agent(e, Brutus) & theme(e,Caesar)] (Parsons 1990: 97)

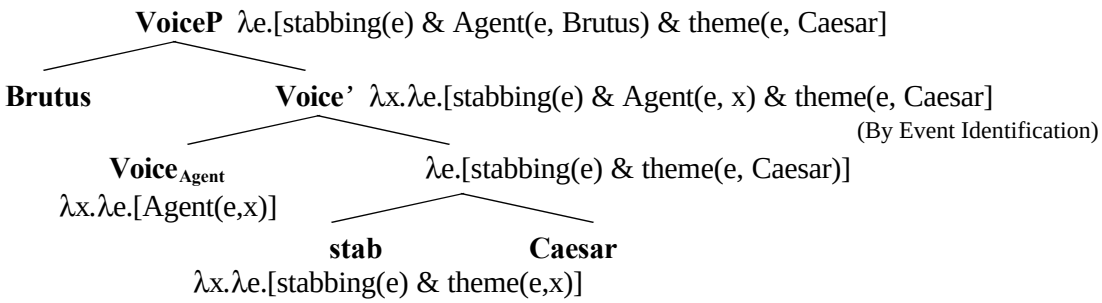
As Kratzer (1996, forthcoming) discusses, a neo-Davidsonian approach to logical forms does not entail that the *syntax* must be neo-Davidsonian. In other words, maintaining that the agent and the theme are syntactic arguments of *stab* (rather than separate predicates) is possible even if we consider representations in conceptual structure to be neo-Davidsonian, as shown below:

(9) ORDERED ARGUMENT ASSOCIATION IN THE SYNTAX AND NEO-DAVIDSONIAN ASSOCIATION IN CONCEPTUAL STRUCTURE:
stab: λx.λy.λe. [stabbing(e) & agent(e, y) & theme(e,x)]

However, Kratzer's thesis is that when it comes to the external argument, argument association *is* neo-Davidsonian even in the syntax. In other words, Kratzer argues that the external argument is not introduced by the verb, but by a separate predicate, which Kratzer calls 'Voice'. Voice is a functional head denoting a thematic relation that holds between the external argument and the event described by the verb; it combines with the VP by a rule called Event Identification. Event Identification allows one to add various conditions to the event that the verb describes; Voice, for example, adds the condition that the event has an agent (or an experiencer or whatever one consider possible thematic roles for external arguments). The rule of Event Identification is given and exemplified below (as in Kratzer, 1996, *s* is here the semantic type for eventualities):

(10) a. EVENT IDENTIFICATION
<e,<s,t>> <s,t> → <e,<s,t>>

b. Brutus stabbed Caesar.



The proposal that external arguments are not true arguments of the verb was already made in Marantz (1984). Marantz observed that internal arguments often trigger special interpretations of the verb while external arguments hardly ever do so, and argued that this is straightforwardly accounted for if the external argument is not a true argument of the verb. Kratzer's proposal builds on Marantz's insight and develops a theory about how Marantz's idea can be executed in the syntax without sacrificing traditional assumptions about semantic composition and projection. In other words, Kratzer's theory is an account of how external arguments are syntactically introduced even though they are not projected by the verb.

The assumption that the external argument is not a true argument of the verb has become standard in much syntactic research. For example, all current work within the Minimalist Program assumes it. In Chomsky (1998, 1999), the external argument introducing head plays a special role in defining a domain for cyclic interpretation and spell-out, i.e. a "phase". The assumption that the external argument is not an argument of the verb is crucial for the present work: the properties of applicative constructions (Ch. 2) and their interactions with causative constructions (Ch. 3) could not otherwise be accounted for. Thus one of the main contributions of the present dissertation is to develop a new empirical argument for separating the external argument from its verb. In other words, it will be shown that even though external arguments are obligatory in some syntactic environments (unlike, say, most indirect objects), they are "additional" in that they involve an argument introducer that is separate from the verb.

A terminological remark is in order. Following Kratzer, this thesis will call the external argument introducing head 'Voice'. This terminology differs from Chomsky's, where the external argument introducing head is called *v* (read 'little v'). The label *v* is, however, also used in a broader sense in Marantz's work, where *v* stands for any functional head that is of verbal category (i.e. for any verbal derivational affix, in traditional terms). Since the focus of the present work is in the interpretations and argument structures of argument-introducing heads, and in order to avoid confusion, functional heads will be labeled according to their meanings (rather than categories) throughout. Thus Voice can be taken as a meta-variable ranging over possible interpretation of the relation between an external argument and the event described by the complement of Voice.

1.3. Summary of the dissertation: seven argument introducers

The present dissertation argues that the introduction of non-core arguments is largely carried by the seven functional heads listed in Table 1.

Head	Meaning	Example construction
(1) High Applicative	Thematic relation between an applied argument and the event described by the verb	• Chaga benefactive. (§2.1) • Luganda benefactive (§2.1.2, 2.1.3) • Venda benefactive. (§2.1.2, 2.1.3) • "Gapless" Japanese adversity passives. (§2.3)
(2) Low Recipient Applicative	A transfer of possession relation between two individuals: asserts that the direct object is *to* the possession of the indirect object.	• English double object construction (§2.1, 2.1.1, 2.1.2) • Japanese double object construction (§2.1.1, 2.1.2)
(3) Low Source Applicative	A transfer of possession relation between two individuals: asserts that the direct object is *from* the possession of the indirect object.	• Hebrew possessor datives (§2.2) • Japanese adversity causatives and "gapped" adversity passives (§2.3)
(4) Root-selecting CAUSE	Relates a causing event to a category-free root.	• Japanese lexical causative (§3.4.2.1) • English lexical causative (§3.4.2.1)
(5) Verb-selecting CAUSE	Relates a causing event to a verb.	• Bemba *–eshya* causative (§3.4.3.1) • Finnish *–tta* causative (§3.4.3.2)
(6) Phase-selecting CAUSE	Relates a causing event to a phase, i.e. is able to combine with a constituent to which an external argument has been added.	• Venda *–is* causative (§3.4.4) • Luganda *–sa* causative (§3.4.4.)
(7) Voice (Kratzer 1996)	Thematic relation between the external argument and the event described by the verb	• Any construction with an external argument, dianosable via e.g. passivization. For empirical evidence see in particular §2.1 and §3.4.4.

TABLE 1: Argument introducers.

These heads are taken to belong to a universal inventory of functional elements from which a particular language must make its selection (Chomsky, 1998). Crosslinguistic variation is argued to have two sources: (i) selection (Chomsky, 1998) and (ii) the way a language packages the selected elements into syntactic heads.

The first part of this dissertation proposes a new applicative typology. The syntax of applicative constructions has been heavily studied, the main discovery being that in some applicatives both the direct and the indirect object exhibit object properties while in others only the applied argument does. Various syntactic solutions to this difference have been proposed, relying on theta-hierarchies or Government and Binding notions such as Case theory (Baker, 1988) or government (Marantz, 1993).

This dissertation shows that applicative constructions in fact divide into two different types *semantically*. In one type the applicative head denotes a thematic relation between an individual and the event described by the verb. This type will be called a *high applicative* ((1) in Table 1), since the applicative head attaches above the VP. The other type of applicative is *low*; the head combines with the direct object and denotes a transfer of possession relation between the direct object and the applied argument. From this proposal various applicative asymmetries fall out naturally, including new data on the combinatorics of secondary predication with the two different types of applicatives (§2.1.3). Further, it will be argued that low applicatives come in two varieties: one describes a recipient-relation between the indirect and direct objects and the other a source relation. It will be argued that so-called adversity constructions, which otherwise constitute a puzzling syntax-semantics mismatch, are in fact ordinary double object constructions except that they exemplify the source variety of low applicatives.

The second part of the dissertation develops a theory about causativization. I argue that causative constructions are crosslinguistically *similar* in that they all involve a causative head which introduces a causing event to the semantics of the construction. Crucially, though, the causative head does not introduce an external argument; external arguments are always introduced by Voice. Crosslinguistic *variation* in causative constructions is derived from two different sources: (i) from the size of the complement of CAUSE (§3.4.) and (ii) from the syntactic dependence of CAUSE on Voice (§3.3). Important differences in the distribution of causative constructions will be shown to follow from these two parameters.

Chapter 2. Applicatives

Most languages have a means of adding an indirect object to the argument structure of a verb. In the Bantu languages this possibility is particularly widely attested. In Bantu linguistics such additional arguments are called *applied* arguments and the resulting constructions *applicative* constructions. Here this terminology will be used for constructions with additional indirect objects cross-linguistically.

While applicative constructions appear to have similar meanings across languages, their syntactic properties differ. For example, both English and the Bantu language Chaga have a double object construction with an applied, benefactive, argument, but only in Chaga can such a benefactive participant be added to an unergative verb:

(11) ENGLISH
a. I baked a cake.
b. I baked ***him*** a cake.
c. I ran.
d. *I ran ***him***.

(12) CHAGA
a. N-á-ŋ́-lì-í-à **m-kà** k-élyá
FOC-1SG-PRES-eat-APPL-FV **1-wife** 7-food
'He is eating food for his **wife** '

b. N-á-ì-zrì c-í- à **mbùyà.**
FOC-1SG-PRES-eat-APPL-FV **9-friend**
'He is running for a **friend**' (Bresnan and Moshi 1993: 49-50)

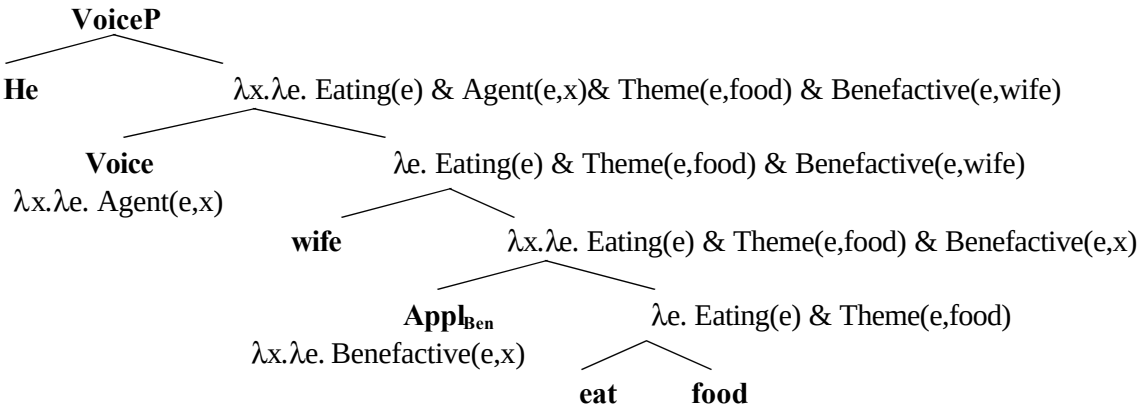
Here I will show that the semantic similarity between the English and the Chaga benefactives is only apparent. Specifically, I argue that in Chaga, the applicative head relates an individual to the event described by the VP while in English, the applicative head relates an individual to the direct object. I argue that applicative constructions crosslinguistically split into these two different types and show how this proposal derives a host of applicative asymmetries of the sort in (11-12).

2.1. High and low applicatives

Since applicative affixes add an argument to the verb, the most straightforward hypodissertation for their semantics is to say that they are elements which take a predicate of events as their argument and

introduce an individual which is thematically related to the event described by the verb. This, in essence, was the proposal in Marantz (1993). Combining Marantz's theory with current assumptions about external arguments gives us a tree where both the applicative head, APPL, and the external argument introducing head Voice (Kratzer 1994) are functional elements above the VP combining with the VP via Event Identification. The Chaga benefactive in (12b), for example, receives the structure in (13).

(13) MARANTZ 1993, IN THE FRAMEWORK OF KRATZER 1994:



Here *the wife* stands in a benefactive relation to the event of eating but bears no relation to the object of eating, i.e. 'the food'. This seems correct since the wife could not plausibly enter into, say, a possessive relation with the food as a result of somebody eating it. The same reasoning holds for instrumental applicatives, such as the Chichewa example in (14), where 'the knife' bears an instrumental relation to the event of molding but no relation to 'the waterpot':

(14) CHICHEWA INSTRUMENTAL:

Mavuto	a-na-umb-ir-a	mpeni	mtsuko
Mavuto	SP-PAST-mold-APPL-ASP	knife	waterpot

'Mavuto molded the waterpot with a knife' (Baker 1988: 354)

An interpretation where the applied argument bears no relation to the direct object is, however, impossible in the English double object construction. The sentence *Jane baked Bill a cake*, for example, cannot mean that Jane did the baking for Bill so that he wouldn't have to. Jane has to at least intend that Bill gets the cake.

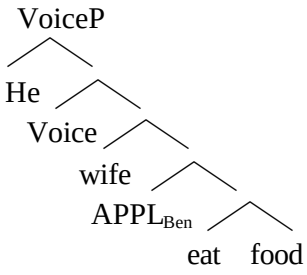
Since a relationship between the applied object and the direct object is obligatory in English, examples where no such a relationship can be construed are ungrammatical. Hence the Chaga benefactive in (12a) cannot be expressed as an English double object construction: it is not possible that the food enters into a possessive-like relationship with the wife as a result of the husband eating it. Similarly in

(15b), John's holding a bag does not plausibly result in a possessive relationship between Mary, the applied argument, and the bag and therefore the sentence is ungrammatical.

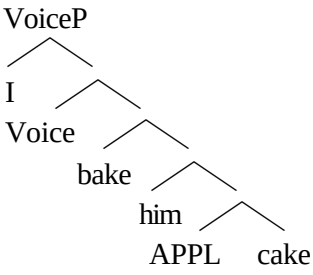
(15) a. *He ate the wife food.
b. *John held Mary the bag.

The main claim of this chapter is that the English and the Chaga applicatives illustrate a general typology of applicative constructions. Specifically, I propose that there are two different types of applicative heads: *high applicatives*, which denote a relation between an event and an individual and *low applicatives*, which denote a relation between two individuals. High applicatives attach above the verb and low applicatives below it, as shown in (16).[1]

(16) a. HIGH APPLICATIVE (CHAGA)



b. LOW APPLICATIVE (ENGLISH)



The two constructions are similar in that in both the applied argument asymmetrically c-commands the direct object. This c-command asymmetry is one of the defining properties of double object/applicative constructions crosslinguistically (Barss and Lasnik 1986, Marantz 1993). But the meanings of the high and low applicative heads are different. High applicatives are very much like the external argument introducing head: they simply add another participant to the event described by the verb. In contrast, low applied arguments bear no semantic relation to the verb whatsoever: they only bear a transfer of possession relation to the direct object.[2] In other words, the meanings of the English double object constructions in (17) are approximately as below:

(17) LOW RECIPIENT APPLICATIVE: ENGLISH
a. I wrote John a letter. *I wrote a letter and the letter was to the possession of John.*
b. I baked my friend a cake. *I baked a cake and the cake was to the possession of my friend.*
c. I bought John a new VCR. *I bought a new VRC and the VCR was to the possession of John.*

[1] The structure of low applicatives is similar to that proposed by Pesetsky (1995) for English double object constructions, although these two proposals differ semantically.

[2] Cf. Pesetsky's (1995) characterization of English applied objects as Possessor-Goals.

The semantics of low applicatives proposed in (17) differs crucially from so-called small clause analyses of double object constructions (Guéron, 1986; Hoekstra, 1988; Harley, 2000) which treat double object constructions as types of causatives where the predicate CAUSE takes as its complement the predicate 'Goal has Theme', as shown in (18b):

(18) SMALL CLAUSE/CAUSATIVE ANALYSIS OF DOUBLE OBJECT VERBS
a. I gave Mary a book.
b. I CAUSE [Mary HAVE a book]

This type of analysis is appealling for the obligatorily ditransitive *give* since (18a) indeed entails a resultant state where Mary has the book. However, a causative analysis is problematic as a general approach to double object constructions, since in most cases this type of an entailment fails, (19). In contrast, the resultant state of causatives is always entailed, (20). Thus causatives are crucially different from double object constructions.

(19) DOUBLE OBJECT CONSTRUCTION
a. I threw John the ball but he didn't catch it.
b. I sent Bill the letter but he never got it.
c. I wrote Sue a letter but she never got it.

(20) CAUSATIVE
a. #I flew the kite over the field but it didn't fly.
b. #I broke the vase but it didn't break.
c. #I cooked the meat but it didn't cook.

Double object constructions also differ from small clause constructions in general. For example, depictive secondary predicates cannot be predicated of English indirect objects, (21a), while they can easily be predicated of subjects in small clauses, (21b). The unavailability of English indirect objects, i.e. low applied arguments, to depictive modification is extensively discussed in §2.1.3.

(21) a. DOUBLE OBJECT CONSTRUCTION
*I told *John* the news *drunk*.

b. SMALL CLAUSE
I saw *John* drive his car *drunk*.

See Pesetsky (1995: 157-163) for further arguments against a small clause analysis of double object constructions.

Thus the present analysis is that the English double object construction illustrates a low applicative where the indirect object is an intended recipient of the direct object. The English double object construction, however, illustrates only one type of a low applicative. In the other type, the indirect object

bears a *source*, rather than a recipient, relation to the direct object. The example below illustrates such a construction in Korean.

(22) LOW SOURCE APPLICATIVE: KOREAN
Totuk-i Mary- hanthey panci-lul humchi-ess-ta
thief-NOM Mary-DAT ring-ACC steal-PAST-PLAIN
'The thief stole a ring from Mary' (Lit: The thief stole Mary a ring)
Hypothesized meaning: 'The thief stole a ring and it was from Mary's possession'

In many Indo-European languages, constructions such as (22) have been called "possessor dative constructions", and they have been argued to clearly differ from the double object construction (e.g. Landau, 1999). However, here I argue that so-called possessor dative constructions are just like double object constructions except that the directionality of the applicative relation is FROM rather than TO.

The rest of this chapter is organized as follows. In the next section, the proposed high/low typology is made more specific by defining the lexical entries for high and low applicative heads. The subsequent two sections test predictions made by the proposal in six languages: English, Japanese, Korean, Luganda, Venda and Albanian. It will be shown that asymmetries in transitivy restrictions, verbal semantics and possibilities for secondary predication strongly support the high/low classification. Finally, two different types of low source applicatives are discussed: Hebrew possessor datives and Japanese adversity passives.

2.1.1. Interpreting high and low applicatives

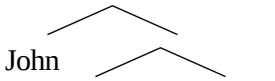
The semantic compositionality of high applicatives is straightforward: the high applicative head combines with the VP by Event Identification and relates an additional individual to the event described by the verb, as shown in (13) above. I'll assume that the universal inventory of functional heads includes several different high applicative heads (Intrumental, Benefactive, Malefactive, and so forth) and that it is a matter of selection which heads occur in any given language.

(23) **High APPL:**
$\lambda x.\lambda e.$ APPL(e,x)
(collapsing $APPL_{BEN}$, $APPL_{INSTR}$. $APPL_{LOC}$ and so forth)

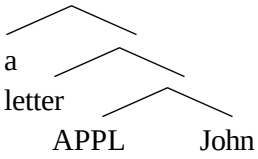
Defining a lexical entry for low applicatives is somewhat more complicated. The c-command properties of low applicatives dictate that the indirect object must c-command the direct object, as in (24a). However, the interpretations in (17) suggest a structure such as the one in (24b), where the applicative head and the indirect object combine with the N of the direct object. In (24b) the applied

argument would end up only bearing a relation to the direct object and the verb could take the direct object as its argument as usual.

(24) a. RIGHT C-COMMAND PROPERTIES



b. RIGHT SEMANTIC RELATION



The structure in (24a) can, however, be maintained by treating low APPL as a higher order predicate, so that APPL-P actually ends up taking the verb as its argument, rather than vice versa.[3] This may seem counterintuitive, but it is good to bear in mind that this is, in fact, how generalized quantifier theory suggests quantifier phrases associate with their verbs as well (Barwise and Cooper, 1981). To make this type of a solution work for the present case, we need to treat low APPL as taking three arguments: the first two are the direct and indirect object and the third one is the verb. The lexical entries of low recipient and source applicatives are given below.[4]

(25) **Low-APPL-TO** (Recipient applicative):
$\lambda x.\lambda y.\lambda f_{<e<s,t>>}.\lambda e.$ f(e,x) & theme (e,x) & to-the-possession(x,y)

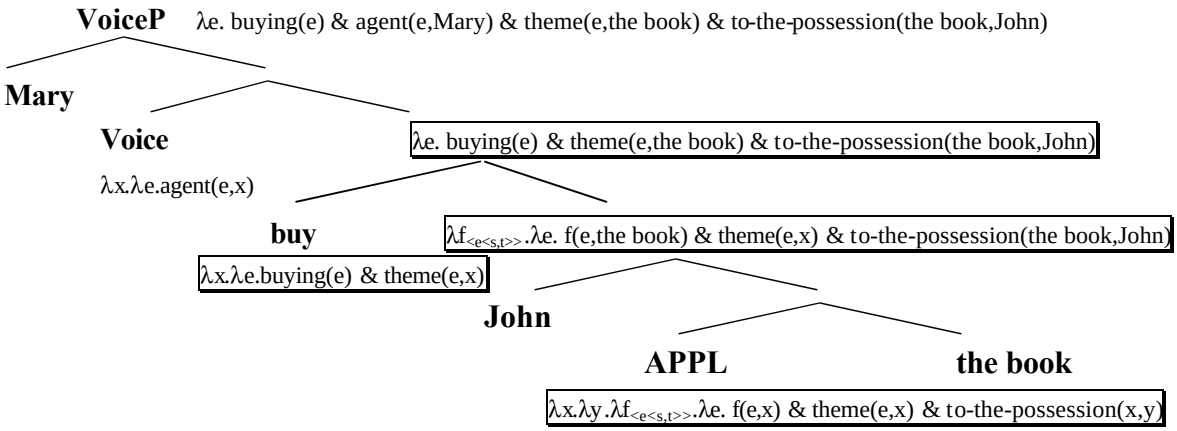
Low-APPL-FROM (Source applicative):
$\lambda x.\lambda y.\lambda f_{<e<s,t>>}.\lambda e.$ f(e,x) & theme (e,x) & from-the-possession(x,y)

The derivation then proceeds as follows:

[3] Thanks to Karlos Arregi (p.c.) for suggesting this solution.

[4] In (22) the object of the transfer is specified to bear the theme relation to the event described by the verb. Theme here is meant to capture thematic relations borne by direct objects quite generally, i.e. no distinction is drawn between say themes and patients. Specifying that the object being transferred bears a theme-relation to an event ensures that low applied arguments are indeed low, i.e. they cannot be related to external arguments (which stand in other types of relations to the event described by the verb). I wish to make it clear though that this is not meant as an explanation for why low applied arguments must relate to internal rather than external arguments; why this must be so will remain an open question in this thesis. Ultimately, one would suspect that the (non-stipulative) solution lies in a better understanding of what external arguments are. See Chapter 4 for an outline of the issues.

(26) LOW APPLICATIVE
Mary bought John the book.



Thus we've hypothesized that low applicatives relate a recipient or a source to an individual which is the internal argument of a verb and that high applicatives relate an individual to an event. The proposal makes the following two core predictions:

(i) DIAGNOSTIC 1: TRANSITIVITY RESTRICTIONS
Only high applicative heads should be able to combine with unergatives. Since a low applicative head denotes a relation between the direct and indirect object, it cannot appear in a structure that lacks a direct object.

(ii) DIAGNOSTIC 2: VERB SEMANTICS
Since low applicatives imply a transfer a possession, they make no sense with verbs that are completely static: for example, an event of holding a bag does not plausibly result in the bag ending up in somebody's possession. High applicatives, on the other hand, should have no problem combining with verbs such as *hold*: it is perfectly plausible that somebody would benefit from a bag-holding event.

The section below applies these applicative diagnostics to six different languages. A tight correlation between transitivity restrictions and verbal semantics emerges.

2.1.2. Correlation between transitivity restrictions and verbal semantics

The data below illustrate double object constructions from six languages: English, Japanese, Korean, Luganda, Venda and Albanian.

(27) a. ENGLISH
I baked him a cake.

b. JAPANESE
Taroo-ga Hanako-ni tegami-o kaita.
Taro-NOM Hanako-DAT letter-ACC wrote
'Taro wrote Hanako a letter'

c. KOREAN
John-i Mary-hanthey pyunci-lul sse-ess-ta
John-NOM Mary-DAT letter-ACC wrote-PAST-PLAIN
'John wrote Mary a letter'

d. LUGANDA
Mukasa ya-som-e-dde Katonga ekitabo
Mukasa 3G.PAST-read-APPL-past Katonga book
'Mukasa read Katonga a book'

e. VENDA
Ndo-tandulela tshimu ya mukegulu
1SG.PAST-survey old.woman the field
'I surveyed the field for the old woman'

f. ALBANIAN
Drita i poqi Agimit kek.
Drita ACC-CL baked Agim.DAT cake
'Drita baked Agim a cake'

According to the transitivity and verb semantics diagnostics, the English, Japanese and Korean double object constructions pattern as low, while the Luganda, Venda and Albanian double object constructions pattern as high. In other words in English, Japanese and Korean neither unergative nor static verbs can be applicativized, while in Luganda, Venda and Albanian they can.

LOW:

(28) ENGLISH
a. *UNERGATIVE VERB
*I ran him

b. *STATIC VERB
*I held him the bag

(29) JAPANESE
a. *UNERGATIVE VERB
*Taroo-ga Hanako-ni hasitta.
Taroo-NOM Hanako-DAT run-PAST
'Taro ran for Hanako'

b. *STATIC VERB
*Taroo-ga Hanako-ni kanojo-no kaban-o motta
Taro-NOM Hanako-DAT she-GEN bag-ACC held
'Taro held Hanako her bag'

(30) KOREAN
a. *UNERGATIVE VERB
*Mary-ka John-hanthey talli-essta.
Mary-NOM John-DAT run-PAST
'Mary ran to/from John'

b. *STATIC VERB
*John-i Mary-hanthey kabang-ul cap-ass-ta
John-NOM Mary-DAT bag-ACC hold-PAST-PLAIN
'John held Mary her bag'

HIGH:

(31) LUGANDA
a. ✓UNERGATIVE VERB
Mukasa ya-tambu-le-dde Katonga
Mukasa PAST-walk-APPL-PAST Katonga
'Mukasa walked for Katonga'

b. ✓STATIC VERB
Katonga ya-kwaant-i-dde Mukasa ensawo
Katonga PAST-hold-APPL-PAST Mukasa bag
'Katonga held the pot for Mukasa'

(32) VENDA
a. ✓UNERGATIVE VERB
Ndi-do-shum-el-a musadzi
1SG-FUT-work-APPL-FV lady
'I will work for the lady'

b. ✓STATIC VERB
Nd-o-far-el-a Mukasa khali
1sg-PAST-hold-APPL-FV Mukasa pot
'I held the pot for Mukasa'

(33) ALBANIAN
a. ✓UNERGATIVE VERB
I vrapova
him(DAT.CL) ran.1sg
'I ran for him'

b. ✓STATIC VERB
Agimi i mban Drites çanten time
A.NOM DAT.CL holds Drita.DAT bag.ACC my
'Agim holds my bag for Drita'

These data illustrate a tight correlation between the possibility of applicativizing unergatives and the possibility of applicativizing static verbs such as *hold.* Both of the properties are predicted by the high/low typology. The following section establishes a third applicative diagnostic: depictive secondary predication.

2.1.3. Depictive secondary predication as an applicative diagnostic

English indirect objects are mysterious in that they constitute the only case in which a depictive secondary predicate cannot be predicated of a bare DP that is inside a VP (Williams, 1980).

(34) a. I gave Mary *the meat raw.*
b. *I gave *Mary* the meat *hungry.* (= Baker, 1997: ex 23c,d)

In this section I show that this is, in fact, a predicted property of low applicatives. Interestingly, once we have fleshed out the syntax and semantics of depictive constructions, the opposite prediction is made for high applicatives: they should be available for depictive modification. This also is born out. Thus depictive secondary predication is an applicative diagnostic.

2.1.3.1. The syntax and semantics of depictives

Depictive secondary predicates describe a state in which one of the arguments of the verb is during the event described by the verb. This state can be predicated of internal and external arguments, although if the external argument is implicit, as in a passive, it is unavailable for a depictive. Also, depictives generally cannot access DPs inside PPs. And finally, as already stated above, depictives cannot be predicated of indirect objects.

(35) OBJECT DEPICTIVE
a. John ate *the meat raw.*

SUBJECT DECPITIVE
b. *John* wrote this letter *drunk*.

*IMPLICIT EXTERNAL ARGUMENT
c. *This letter was written drunk.

*DP INSIDE PP
d. *I talked to *Sue drunk*.

*INDIRECT OBJECT
e. John told *Mary* the news *drunk*.

In order to show how the present analysis of low applied arguments predicts their unavailability for depictive secondary predication, it will be necessary to have a concrete hypothesis about the syntax and semantics of depictives. Two types of analyses appear in the literature. One is a small clause analysis involving control (Williams, 1980) and the other a complex predicate analysis, where the depictive phrase combines with the verb directly (Cormack and Smith, 1999; Yatsushiro, 1999). Control analyses face the challenge that indirect objects *are* actually possible controllers, even though they cannot be modified by depictives (Koizumi, 1994). Thus, there is evidence that depictive secondary prediction is different from control in an important sense.

(36) a. CONTROL: INDIRECT OBJECT IS A POSSIBLE CONTROLLER
I wrote him$_j$ a letter to PRO$_j$ show his mother.

b. DEPICTIVE: INDIRECT OBJECT IS UNAVAILABLE FOR A DEPICTIVE
I$_i$ told him$_j$ the news drunk$_{(i/*j)}$.

An adequate analysis of depictives must also capture the fact depictives are not semantically just like adjectives; in addition to attributing a property to an individual (i.e. to one of the arguments of the verb), depictives assert that the state described by the adjective holds during the event described by the verb. In this way depictives are like adverbs: they attribute a property to the event described by the verb. Since depictives name a state that holds during an event, individual-level adjectives sound strange as depictives (Geuder, 2000).

(37) He entered the room annoyed/ ??crazy/ ??tall.

The analysis proposed here is a complex predicate analysis employing the semantics for depictives given in Geuder (2000). Geuder argues that the truth conditions of sentences containing secondary depictives predicates are as in (38); here the overlap relation "$_o$" is employed to capture that fact that the depictive describes a state that holds during an event.

(38) GEUDER'S (2000) SEMANTICS FOR DEPICTIVES:

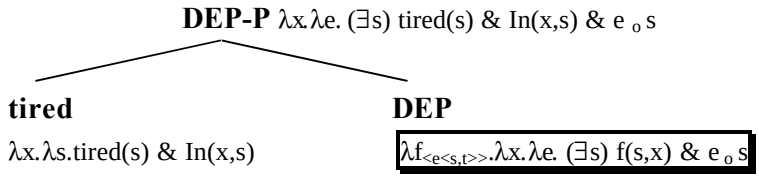
We had eaten tired.
$\exists t \{ t < t_0 \ \& \ \lambda x [\exists e(\text{eat}(e)(x) \ \& \ \exists s [e \ _o s \ \& \ \text{tired}(s)(x)]) \ \& \ t = \text{AFTER}(e)] (\text{we}) \}$

Geuder proposes that depictives have a "constructional meaning"; i.e. the above interpretation of depictives "arises from the syntactic structure in which they occur." However, if we treat depictive

phrases as decomposing into an adjective and a depictive head (DEP) which temporally links the state denoted by the adjective to an event, a fully compositional analysis of depictives becomes possible.

(39) a. **DEP**: $\lambda f_{<e<s,t>>}.\lambda x.\lambda e.\ (\exists s)\ f(s,x)\ \&\ e\ _o\ s$

b.



The presence of a separate depictive head is empirically plausible since in many languages depictives are morphologically distinct from their underlying adjectives. For example, in Finnish, depictive secondary predicates carry essive case, which I assume to be assigned by DEP.

(40) a. ADJECTIVE

Sö-i-n raa'an tomaati-n.
eat-PAST-1SG raw-ACC tomato-ACC
'I ate a raw tomato'

b. DEPICTIVE:

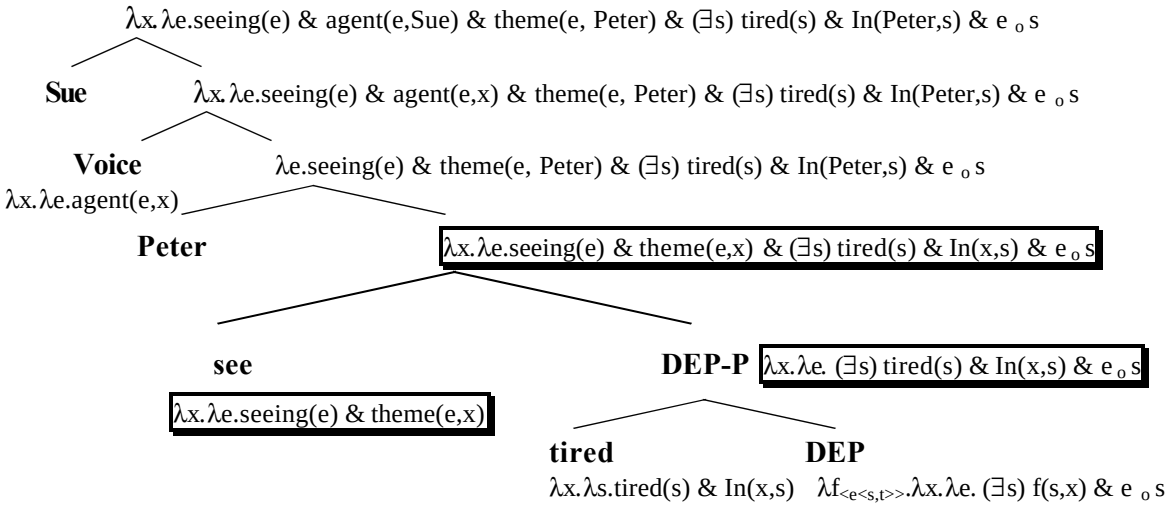
Sö-i-n tomaati-n raaka-na.
eat-PAST-1SG tomato-ACC raw-ESSIVE
'I ate a tomato raw'

The hypothesis then is that depictive phrases are of type <e<st>>. This means that a depictive secondary predicate should be able to combine via Predicate Modification with constituents that are of type <e<st>>. In the present framework, transitive verbs and Voice' are such: they both have an event argument and an unsaturated argument of type *e*. Thus we can account for subject and object depictives by having DEP-P combine directly with the verb in the former case and with Voice' in the latter.[5]

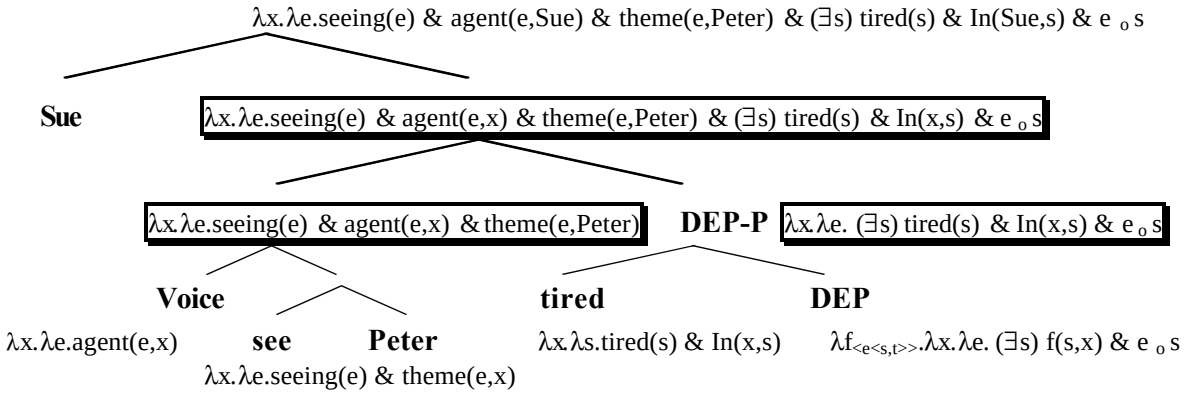
[5] This syntactic treatment is essentially the same as the one proposed by Yatsushiro (1999), although she does not comment on the internal structure or interpretation of the depictive phrase.

(41) OBJECT DEPICTIVES: DEP-P COMBINES DIRECTLY WITH THE VERB

Sue saw *Peter tired*.



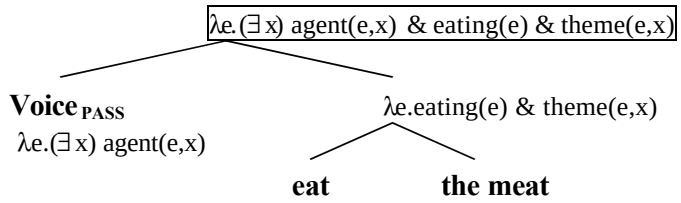
(42) SUBJECT DEPICTIVES: DEP-P COMBINES WITH VOICE'
Sue saw Peter *tired*.



The impossibility for depictives to modify an implicit external argument is also predicted, as long as we assume that passive Voice makes the external argument syntactically unavailable. Below I assume that passive Voice existentially closes off the external argument:

(43) IMPLICIT EXTERNAL ARGUMENTS: VOICE' IS OF TYPE <s,t>

*The meat$_j$ was eaten hungry$_{(i)}$.

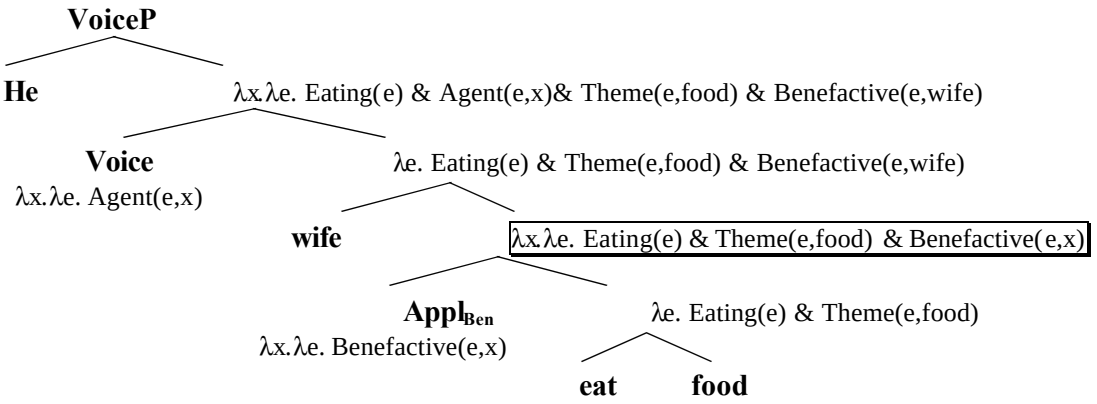


The next section lays out and tests the predictions of the present analysis for high and low applied arguments.

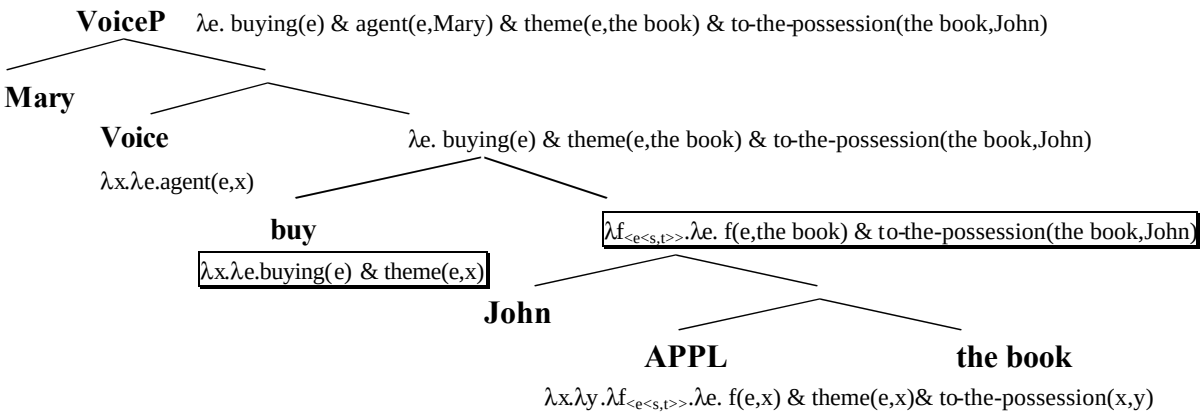
2.1.3.2. Depictives and applicatives

Section 2.1.1 argued for the following syntax and semantics for high and low applied arguments:

(44) HIGH APPLICATIVE



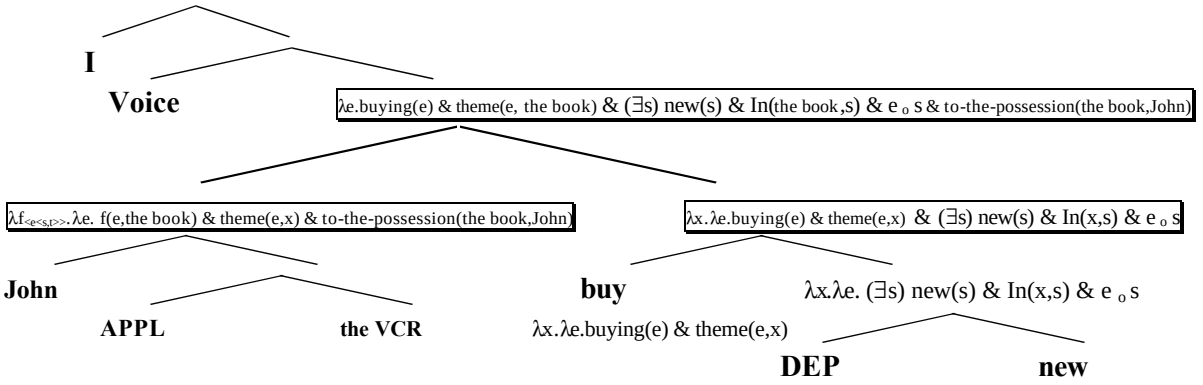
(45) LOW APPLICATIVE



If low applied argument were to be modified by a depictive, the depictive would have to attach to APPL'. However, APPL' is too complex a predicate for DEP-P to modify: DEP-P modifies predicates of type <e,st>, but APPL' is of type <e<<e,st>,<st>>>. Thus low applied arguments are predicted to be unavailable for depictive modification. However, even though depictives cannot occur inside low applicative phrases, the *direct* object is still available for depictive modification even in low applicatives. This is because the verb offers an attachment site for DEP-P. This is the correct result, as shown by the grammaticality of (46):[6]

(46) DEPICTIVE MODIFICATION OF THE DIRECT OBJECT IN A LOW APPLICATIVE CONSTRUCTION

I bought John *the VCR new*.



High applied argument, on the other hand, should be available for depictive modification since high applied argument are interpreted just like external arguments. In what follows I show that the prediction is born out: *if a language has an English type depictive secondary predicate, the depictive can modify an applied argument only if the applied argument is high*.

2.1.3.2.1. Japanese (low)

Section 2.1.2 showed that Japanese double object-construction pattern as low. From the data below we can see that Japanese depictive secondary predicates behave as those in English: they can modify subjects and objects but not implicit external arguments or DPs inside PPs:

[6] Here the correct word order is achieved by assuming that the direct object merges to the left of the verb and that the verb raises to Voice.

(47) BASIC DEPICTIVE DISTRIBUTION:

a. OBJECT DEPICTIVE:
Taroo-ga katuo-o nama-de tabe-ta
Taro-NOM bonito-ACC raw eat-PAST
'Taro ate the bonito raw'

b. SUBJECT DEPICTIVE:
Taroo-ga ie-o hadaka-de nut-ta.
Taro-NOM house-ACC naked paint-PAST
'Taro painted the house naked'

c. DEPICTIVE CANNOT MODIFY IMPLICIT EXTERNAL ARGUMENT
*Kono-ie-ga hadaka-de nur-are-ta
this-house-NOM naked paint-PASS-PAST
'This house was painted naked'

d. DEPICTIVE CANNOT MODIFY A DP INSIDE A PP
*Tarooga *Hanako*-kara *kimono-sugata-de* ringo-o morat-ta
Taro-NOM Hanako-from kimono-dressed apple-ACC receive-PAST
'Taro received an apple from Hanako dressed in a kimono'

Thus the prediction that depictives should not be able to modify low applied arguments can be tested in Japanese. The prediction is born out: the dative in (48) is unavailable for depictive modification (no matter what position the depictive occurs in):

(48) LOW APPLICATIVE: UNAVAILABLE FOR DEPICTIVE

a. Taroo-ga hadaka-de Hanako-ni hon-o yonda
Taro-NOM naked Hanako-DAT book-ACC read
'Taro read Hanako a book naked' *False if Taro isn't naked*

b. Taroo-ga Hanako-ni hadaka-de hon-o yonda
Taro-NOM Hanako-DAT naked book-ACC read
'Taro read Hanako a book naked' *False if Taro isn't naked*

2.1.3.2.2. Korean (low)

In addition to English and Japanese, Korean was classified as low in §2.1.2. Unfortunately, Korean does not have depictive secondary predicates (Cormack and Smith, 1999), and hence our prediction cannot be tested in Korean.

(49) KOREAN: NO DEPICTIVES

a. *SUBJECT DEPICTIVE (Cormack and Smith, 1999, ex 43):
*John-un botong sul-e chuyhatssul-tte-man chum-ul chu-chiman,
John-NOM usually alcohol-E drink-PAST-when-only dancing-ACC dance-but

ku-uy saengilnal-enun (chum-ul) onjeonha-key chu-ess-ta.
his-POSS birthday-ON sober-KEY danced

'Usually John dances only when he is drunk, but on his birthday, he danced sober (without drinking/in the state of not drunken).'

b. *OBJECT DEPICTIVE (Jang 1997: 153, ex.15)):
*John-i mwulkoki-lul sinsenha-key mek-ess-ta
John-NOM fish-ACC fresh-KEY eat-PAST-PLAIN
'John ate the fish fresh'

2.1.3.2.3. Luganda (high)

Luganda applicatives pattern are high (§2.1.2.) and Luganda depictives have the same distribution as depictives in English. Luganda depictives are expressed either with a bare adjective or with *nga*+adjective.[7] *Nga* is optional if the depictive modifies its closest argument in the surface string, but if this is not the case (as in a subject depictive of a transitive verb) *nga* is strongly preferred.

(50) BASIC DEPICTIVE DISTRIBUTION:

a. OBJECT DEPICTIVE:
Mukasa ya-li-dde enyama (nga) embisi
Mukasa PAST.3sg-eat-PAST meat raw
'Mukasa ate *the meat raw*'

b. SUBJECT DEPICTIVE:
Mukasa ya-koze (nga) akooye
Mukasa PAST.3sg-work tired
'*Mukasa* worked *tired*'

c. SUBJECT DEPICTIVE:
Mukasa ya-li-dde enyama nga akooye
Mukasa PAST.3sg-eat-PAST meat tired
'*Mukasa* ate the meat *tired*'

d. DEPICTIVE CANNOT MODIFY IMPLICIT EXTERNAL ARGUMENT:
*Enyama ba-gi-li-dde nga akooye
meat PAST.3sg-PASS-eat-PAST tired
'The meat was eaten tired'

[7] *Nga* seems to be a preposition with many uses; for example, it occurs in instrumental PPs.

e. DEPICTIVE CANNOT MODIFY A DP INSIDE A PP:
Katonga$_i$ ya-tambudde ne Mukasa$_j$ nga akooye$_{(\checkmark i *,j)}$
Katonga past.3sg-walk with Mukasa tired
'Katonga$_i$ walked with *Mukasa$_j$ tired*$_{(\checkmark i *,j)}$'

Thus Luganda allows us to test our hypothesis that depictive secondary predicates should be able to modify high applied arguments. This indeed is the case:

(51) a. DEPICTIVE CAN MODIFY A HIGH APPLIED ARGUMENT
Mustafa ya-ko-le-dde Katonga nga mulwadde
Mustafa past.3SG-work-APPL-past Katonga DEP sick
'Mustafa worked for *Katonga sick*'
(Judged true in a situation where Mustafa is healthy and Katonga is sick)

b. DEPICTIVE CAN MODIFY A HIGH APPLIED ARGUMENT
Mukasa ya-ko-le-dde Katonga nga akooye
Mukasa past.3sg- work-APPL-past Katonga DEP tired
'Mukasa worked for *Katonga tired*'
(True in a situation where Mukasa is energetic and Katonga is tired)

2.1.3.2.4. Venda (high)

Venda applicatives pattern as high (§2.1.2.). However, Venda does not appear to have an English type depictive phrase. While adjectives following the VP can have depictive meanings, these adjectives can also modify implicit external arguments and DPs inside PPs. In Venda, the post-verbal AP obligatorily agrees with the DP it modifies except when the AP modifies the direct object.[8]

(52) BASIC DISTRIBUTION:

a. OBJECT DEPICTIVE:
Nd-o-la nama mbisi
1sg-PAST-eat meat raw
'I ate the meat raw'

b. SUBJECT DEPICTIVE:
Nd-o-bambela ndi bunyu
1sg-PAST-swim 1sg naked
'I swam naked'

[8] Thus it appears that Venda has two depictive phrases: one that agrees with the DP that is modified and that is quite free in its distribution, and another that lacks agreement and that is restricted to modifying direct objects. What matters for the present purposes is that neither distribution corresponds to the distribution of depictives in English. In other words, these depictives cannot be used as applicative diagnostics.

c. DEPICTIVE CAN MODIFY AN IMPLICIT EXTERNAL ARGUMENT
Nama yo liwa vho neta
meat was eaten 3pl tired
'The meat was eaten tired'

d. DEPICTIVE CAN MODIFY A DP INSIDE A PP
Nd-o-tshimbila na Mukasa o neta
1sg-PAST-walk with Mukasa 3sg tired
'I walked with Mukasa while he was tired'

These post-verbal adjectives can also modify high applied arguments but since the adjective does not have the typical depictive distribution, the test is unfortunately irrelevant.

(53) a. DEPICTIVE CAN MODIFY A HIGH APPLIED ARGUMENT
Nd-o-shum-el-a Katonga a khou lwala
1sg-past-work-APPL-FV Katonga 3sg STATE sick
'I worked for Katonga while he was sick'

b. DEPICTIVE CAN MODIFY A HIGH APPLIED ARGUMENT
Nd-o-shum-el-a Katonga o neta
1sg-past-work-APPL-FV Katonga 3sg tired
'I worked for Katonga while he was tired'

2.1.3.2.5. Albanian (high)

Albanian applicatives are high (§2.1.2.). But as in Venda, Albanian depictives have too wide a distribution to qualify for the present test. Albanian post-verbal APs are like those in English in that they can modify internal and external arguments but not implicit external arguments. But unlike in English, Albanian "depictives" can also easily modify DPs inside PPs.

(54) a. OBJECT DEPICTIVE:
E hëngra mish-in të gjallë.
it(acc cl) ate-I meat-the agr raw
'I ate *the meat raw*'

b. SUBJECT DEPICTIVE:
E hëngra mish-in e lodhur.
it(acc cl) ate-I meat-the agr.fem.nom tired
'*I* ate the meat *tired*'

c. DEPICTIVE CANNOT MODIFY IMPLICIT EXTERNAL ARGUMENT:
*Keku u poq i lodhur.
cake was baked agr tired
'The cake was baked *tired*'

e. DEPICTIVE CAN MODIFY A DP INSIDE PP:
✓Drita poqi per Agimin e lodhur
Drita baked for Agim fem.nom tired
'Drita baked for *Agim tired*'

Unsurprisingly, Albanian depictives can also modify high applied arguments, but given the possibility to also modify the PP version of the high applicative (i.e. 54e), the test is irrelevant.

(55) DEPICTIVE CAN MODIFY HIGH APPLIED ARGUMENT:
✓Drita i poqi Agimit të lodhur.
Drita.NOM CL baked Agim-DAT 3rd-masc tired
'Drita baked for *Agim tired*'

However, even though our prediction could only be tested in Luganda, all the data collected so far are consistent with the hypothesis that, unlike low applied arguments, high applied arguments are available for depictive modification. This offers further support for the proposed high/low typology. Table 2 summarizes our results so far.

TEST	HIGH APPLICATIVES	LOW APPLICATIVES
1. Can unergatives be applicativized?	Yes.	No.
2. Can static verbs be applicativized.	Yes.	No.
3. If the language has a depictive secondary predicate with the English distribution, is the applied argument available for depictive modification?	Yes.	No.

TABLE 2: Applicative diagnostics.

The following two sections deal with apparent counterexamples to the generalization that low applied arguments are unavailable for depictive modification.

2.1.3.3. Depictives and light verb constructions

Maling (2001) reports that in the following two cases, a depictive secondary predicate can modify an indirect object in English, counter to the generalization made in the previous section.

(56) a. Victorian doctors preferred to give *their female patients* a physical exam *fully-dressed.*
b. The nurse gave *the patient* his medication *still-groggy/half-asleep.*

(Maling, 2001: ex 14c,d)

However, both of these examples illustrate potential light verb constructions, i.e. constructions where it is the direct object that describes the event under discussion rather than the verb. In light verb constructions the verb itself is semantically "light", it mainly just carries tense (although light-verb constructions often also differ aspectually from their "heavy" counterparts, that can be left aside here):

(57) a. "heavy" verb: Victorian doctors examined their patients.
b. "light" verb: Victorian doctors gave their patients an exam.

(58) a. "heavy" verb: The nurse medicated the patient.
b. "light" verb: The nurse gave the patient his medication.

(59) a. "heavy" verb: John looked at the boy.
b. "light" verb: John took a look at the boy.

(60) a. "heavy" verb: John swept the floor.
b. "light" verb: John gave the floor a sweep.

It can be shown that the possibility for a depictive to modify an indirect object is restricted to light verb constructions. This can be illustrated clearly for the example in (56b) since it is ambiguous between a "light" and a "heavy" reading (due to *medication* being a plausible object of transfer):

(61) The nurse gave the patient his medication.
(i) Light-verb:
The nurse medicated the patient.
(ii) Transfer of possession (i.e. double object reading):
The nurse gave the patient his medication by, e.g., placing it on the bedside table of the patient.

The double-object reading can be forced by creating a context where the event of medicating does not occur:

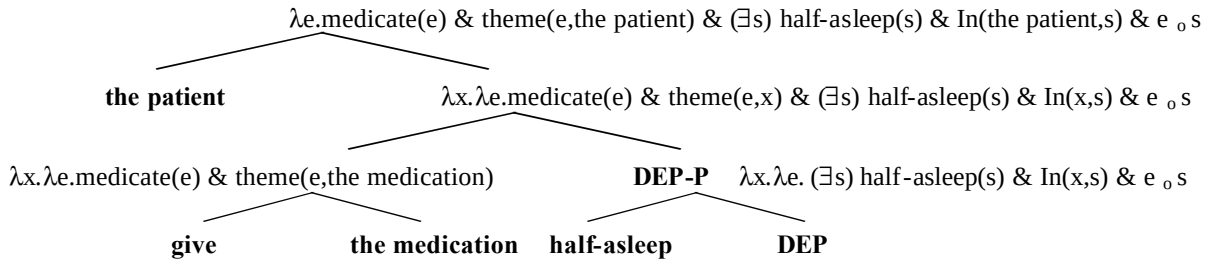
(62) The nurse gave *the patient* his medication but he hasn't taken it yet.

In such a context a depictive is clearly unable to modify the indirect object:

(63) *The nurse gave *the patient* his medication *half-asleep* but he hasn't taken it yet.

Exactly how the direct object of light verb constructions gets to behave as the main event description of these constructions is an open research question, but the details of this do not matter for the present purposes. Here we can simply assume that in light verb constructions the constituent *give+direct object* has the semantics of transitive verbs and that what looks like the indirect object is, in fact, the direct object. In other words, (56b) receives the analysis below:

(64) The nurse gave *the patient* the medication *half-asleep*.



Since light verb constructions are not syntactically low applicatives, Maling's data do not challenge our generalization that low applied arguments cannot be modified by depictives.

2.1.3.4. Depictives and movement

The data below are potentially problematic for the generalization that low applied arguments cannot be modified by depictives. These data show that even though depictives cannot modify low applied arguments in active sentences, they can do so in passives:[9]

(65) a. ACTIVE: *He told *me* the news *drunk*.
b. PASSIVE: *I* was told the news *drunk*.

The fact is not limited to passives; the same holds for unaccusatives. This can easily be illustrated in Finnish where low applicatives are productive with unaccusatives (Pylkkänen, 2001). In Finnish low applicatives come both in the TO and FROM varieties and both are possible with unaccusatives:

(66) FINNISH
a. LOW TO-APPLICATIVE FROM TRANSITIVE
Liisa kirjoitti Mati-lle kirjee-n.
Liisa.NOM wrote Matti-ALL letter-ACC
'Liisa wrote Matti a letter'

[9] The same observation is made by Koizumi who attributes it to a reviewer (Koizumi, 1994, ex. 64).

b. LOW TO-APPLICATIVE FROM UNACCUSATIVE
Liisa-lle tuli kolme kirjettä
Liisa-ABL came three letters
'Liisa got three letters'

c. LOW FROM-APPLICATIVE FROM TRANSITIVE
Liisa myi Mati-lta talo-n.
Liisa.NOM sold Matti-ABL house-ACC
'Liisa sold Matti's house' (Lit: Liisa sold a house from Matti.)

d. LOW FROM-APPLICATIVE FROM UNACCUSATIVE
Liisa-lta tippui avaimet.
Liisa-ABL dropped keys
'Liisa dropped her keys'

As in English, Finnish low applied arguments are unavailable for depictive modification in actives, (67a), but are available for it in passives, (67b). Further, depictives can modify raised applied arguments of unaccusatives, (67c), which shows that licensing depictive secondary predication is a general property of A-movement, not only of passivization.

(67) a. ACTIVE: DEPICTIVE CANNOT MODIFY APPLIED ARGUMENT
Joku$_i$ varasti Sanna-lta$_j$ avaimet juovuksissa$_{(i/*j)}$.
somebody stole Sanna-ABL keys.ACC drunk
'Somebody stole the keys from Sanna drunk'

b. PASSIVE: DEPICTIVE CAN MODIFY APPLIED ARGUMENT
Sanna-lta$_j$ varastettiin avaimet juovuksissa$_{(j)}$
Sanna-ABL stole.PASS keys.ACC drunk
'Sanna got her keys stolen drunk'

c. UNACCUSATIVE: DEPICTIVE CAN MODIFY APPLIED ARGUMENT
Sanna-lta$_j$ tippui t_j avaimet juovuksissa$_{(j)}$.
Sanna-ABL dropped keys drunk
'Sanna dropped her keys drunk'

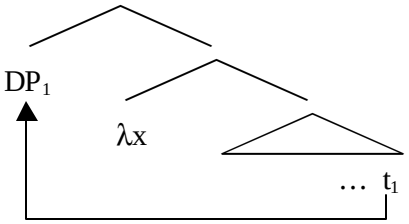
While in English low applicatives are in general impossible with unaccusatives, Pesetsky (1995) argues that the verb *get* has the properties of an unaccusative double object verb. Consistently with the Finnish data, the raised applied argument of *get* is available for depictive modification even though the in-situ applied argument of *give* is not:

(68) a. APPLIED ARGUMENT IN-SITU
*I gave *him* the keys *drunk*.

b. APPLIED ARGUMENT MOVED
He$_i$ got t$_i$ the keys *drunk*.

The fact that movement can license a depictive secondary predicate is interesting since it is, in fact, predicted by the Heim and Kratzer (1998) theory of movement. In order to simplify semantic interpretation, Heim and Kratzer propose that movement creates a predicate abstract which then combines with the moved element via Functional Application. In other words, the output of movement includes a *syntactic constituent* which is a predicate abstract combining with the moved constituent:

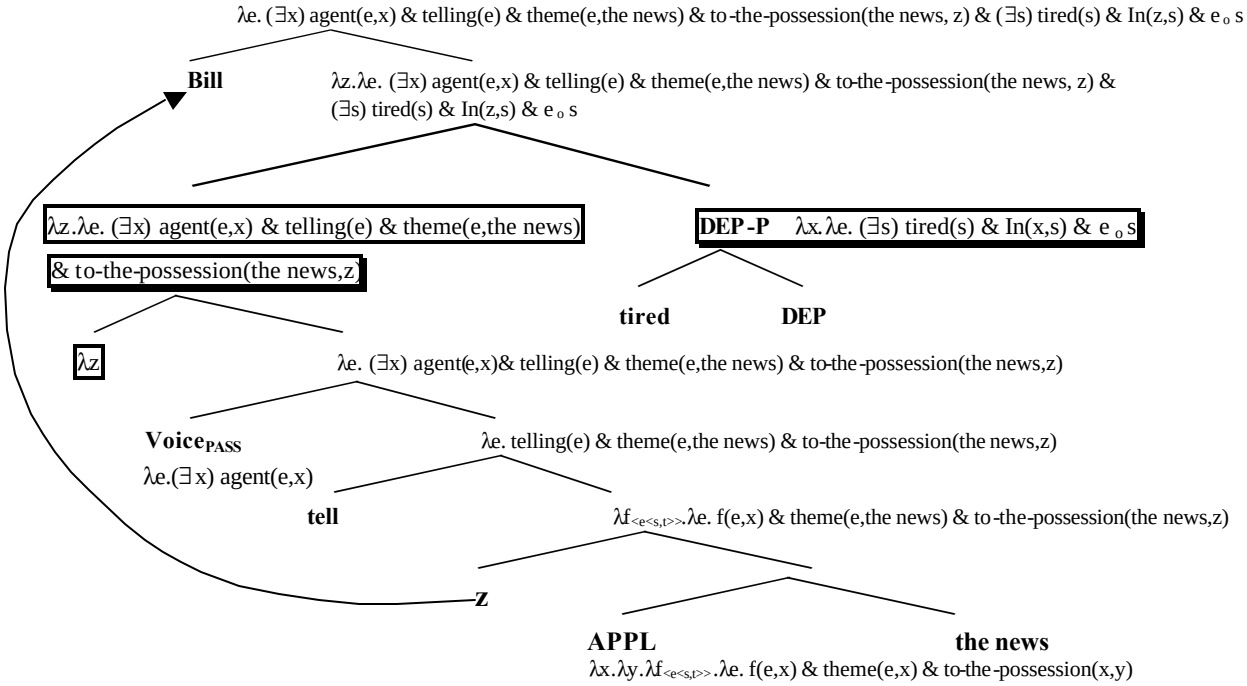
(69)



This proposal makes the prediction that *any* argument that moves to the edge of VoiceP (or to any position where the event argument has not yet been closed off) should be available for depictive secondary predication. In other words, even though a low applied argument cannot be accessed by a depictive in its base position, movement to the edge of VoiceP should create a constituent of exactly the right type for a depictive. This is illustrated below; the interpretation of the predicate abstract and of DEP-P are boxed in this example:

(70) LOW APPLIED ARGUMENT RELEASED FOR DEPICTIVE MODIFICATION VIA MOVEMENT:

Bill was told the news *drunk*.



Of course the ability to release an argument for depictive modification should not be limited to indirect objects; rather, any argument that is unavailable for a depictive in its base position should be available for it after movement. Support for this hypothesis can be found from pseudo-passives: the example in (b) where a DP is extracted from inside a PP is consistently judged better than the in-situ version in (a):

(71) a. DP INSIDE PP IS UNAVAILABLE FOR A DEPICTIVE
*I talked to *Sue drunk*.

B. DP MOVED OUT OF PP *IS* AVAILABLE FOR A DEPICTIVE
Sue was talked to *drunk*.

A straightforward version of the Heim and Kratzer type analysis would of course predict that all types of movement to the edge of VoiceP should create a constituent that a depictive could modify, i.e. A' as well as A. This prediction is difficult to test for indirect objects since A'-extraction of indirect objects is notoriously difficult in English, (72).

(72) WH-EXTRACTION OF A LOW APPLIED ARGUMENT
*Whom did you give the letter?

However, the prediction can be tested for DP inside PPs. As the ungrammaticality of (73) shows, it is clearly not borne out.

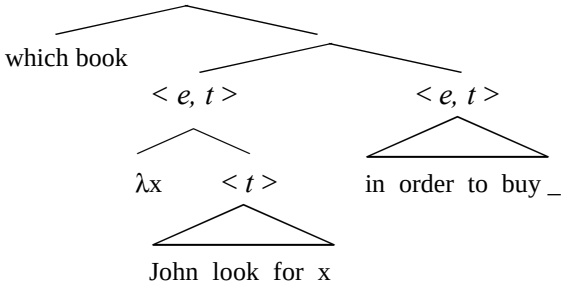
(73) DP WH-EXTRACTED FROM A PP IS UNAVAILABLE FOR A DEPICTIVE
**Who* did you talked to *drunk*.

The result that depictives can only be licensed by A-movement is interesting since Nissenbaum (2000, 2001) makes a proposal very similar to the present one about the licensing of adjuncts containing parasitic gaps. However, Nissenbaum's data point to the opposite conclusion: adjuncts containing parasitic gaps are licensed only by A'-movement, not by A-movement:

(74) a. Which book did John look for _ [in order to buy _].
b. *A book was pulled off the shelf [in order (for me) to buy].

In Nissenbaum's analysis this sort of adjunct containing a parasitic gap is a VP modifier of type <e,t> (his semantics is not event based) and the reason why these modifiers can combine with VPs with gaps in them is because wh-extraction of the direct object creates a predicate abstract of type <e,t> (see Nissenbaum 2000, 2001, for details).

(75) a. Which book did John look for _ [in order to buy _].



Thus, for Nissenbaum, it is crucial that there is a landing site where A'-movement leaves an intermediate trace while A-movement does not (since A-movement does not license parasitic gaps). The present analysis about depictive licencing, on the other hand, demands the opposite assumption: there is must be a landing site where A-movement leaves an intermediate trace while A'-movement does not. Thus one might hypothesize that there are two intermediate landing sites: one where A-movement stops and creates a predicate of the same type as depictive secondary predicates and another where A'-movement stops and creates a predicate of the same type as adjuncts containing parasitic gaps. But this is problematic, as parasitic gaps can in fact appear *inside* depictives, as David Pesetsky and Norvin Richards point out (p.c.):

(76) a. Which country did he die for _ [still loyal to _].

While combining the present analysis with Nissenbaum's work is an interesting problem, I am unable to pursue it further here. See also Legate (2001) for potentially relevant recent work on intermediate traces.

2.2. Hebrew possessor dative constructions as low source applicatives

So far we have discussed the origin of non-core arguments in double object and applicative constructions and concluded that there are two functional heads, high and low APPL, which are responsible for the introduction of these arguments. In this section I argue that low APPL is also responsible for the introduction of non-core arguments in so-called possessor-dative constructions, illustrated below.

(77) a. HEBREW
ha-yalda kilkela **le-Dan** et ha-radio.
the-girl spoiled **to-Dan** Acc the-radio
'The girl broke Dan's radio on him' (Landau, 1999)

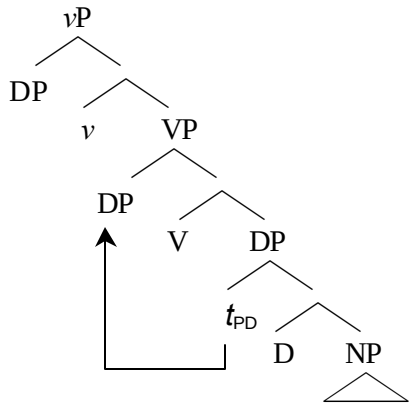
b. GERMAN
Man hat **ihm** seine Frau getötet
one has him his wife killed
'They killed his wife on him' (Shibatani, 1994)

c. FRENCH
On **lui** a tué sa femme.
one him has killed his wife
'They killed his wife on him'

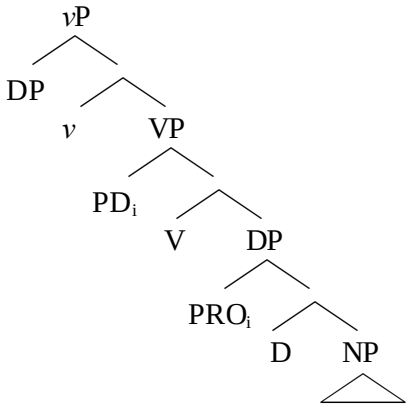
Possessor-dative constructions have been a challenge in argument structure research because their syntax does not seem to reflect their interpretations: while the dative argument behaves as a syntactic argument of the verb, it is interpreted as the possessor of the direct object. Previous analyses have aimed to capture this "dual" behavior by treating the possessor dative as being in two places at the same time, either via raising, (Landau, 1999; Ura, 1996; Kubo, 1992)[10] or control (Guéron, 1985; Borer and Grodzinsky, 1986;).

[10] See also Davies (1981) and Munro (1984) for possessor ascension analyses within the Relational grammar framework.

(78) a. A raising analysis of possessor datives



b. A control analysis of possessor datives



In a raising analysis the dative argument is generated in the specifier position of the object DP and then raises to a higher position, generally to the specifier of V. In this type of an analysis a possessor dative is predicted to be semantically equivalent to the corresponding genitive construction, where the possessor remains within the VP-internal DP. These semantics do not, however, correspond to native speaker intuitions, according to which there is a semantic difference between dative and genitive possessors: in possessor dative constructions the dative argument is intepreted as "affected" in a way that a genitive possessor is not (Landau 1999, p. 3). Granted that the notion of affectedness is notoriously difficult to formalize, a possessor-raising analysis does beg the question of why there should be an intuition of affectedness in the possessor-dative construction.

Control analyses account for the "dual" semantics of possessor datives straightforwardly: the dative bears two semantic roles. One is the role of possessor, since the dative controls a PRO in the possessor position of the direct object. The other semantic role is generally characterized as some type of an Affected role, i.e. Malefactive or Benefactive.

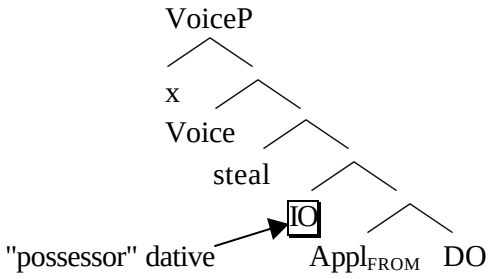
Given the remarkable similarity of possessor dative constructions to double object constructions, an important part of research on possessor datives has been to argue that, despite superficial similarities, possessor-datives are *not* like double-object constructions. But in this section I will argue for the opposite conclusion: possessor datives are syntactically just like double object constructions. The only difference between possessor datives and the more traditional double object constructions is that in possessor-datives the low applicative head denotes a Source, rather than the more familiar Recipient role.

(79) a. LOW APPLICATIVES

Low-APPL-TO (Recipient applicative)
$\lambda x.\lambda y.\lambda f_{<e<s,t>>}.\lambda e.$ f(e,x) & to-the-possession(x,y)

Low-APPL-FROM (Source applicative):
$\lambda x.\lambda y.\lambda f_{<e<s,t>>}.\lambda e.$ f(e,x) & from-the-possession(x,y)

b. POSSESSOR DATIVE CONSTRUCTIONS = LOW SOURCE APPLICATIVES



The challenge for the present approach is to show that the properties of possessor datives can be accounted for in the double object analysis and that all the differences between possessor datives and traditional double object constructions reduce to the reverse directionality of the applicative relation. The discussion will focus on Hebrew possessor datives as Landau (1999) has developed a detailed argument against a double-object account of them. This makes the Hebrew possessor dative construction an ideal testing ground for the present hypothesis.

Landau argues for a possessor raising analysis where the dative is generated as a possessor in the specifier position of the direct object but has to move to Spec VP to check its dative Case features. The sections to follow will go through the properties of the Hebrew possessor dative construction systematically and compare the predictions of the possessor raising and double object accounts.

2.2.1. Pseudo-possessive interpretation

One difference between double object constructions and possessor dative constructions is that in the possessor-dative construction, the dative must be the possessor of the direct object, or at least be somehow responsible for it, while in the traditional double-object construction possessiveness is not asserted. In other words, double object constructions are feliticious even if the indirect object does not end up "possessing" the direct object (Baker 1997):

(80) I sent Bill that package but he never got it.

In the low applicative analysis, this difference is straightforwardly explained by the reversed directionality of the low applicative relation: for an entity to be *from* someone's possession, that person must have had the entity. In other words, possessor dative constructions entail that the direct object in some sense belongs to the dative for the same reason that the English sentence in (81a) entails the sentence in (b):

(81) a. He stole the keys from Mary. →
b. Prior to the event of stealing, Mary had the keys.

Thus the applicative analysis explains the possessive interpretation without positing an empty element in the possessor position of the direct object. Crucially, this analysis also predicts that filling the syntactic position of the possessor should always be possible. This is born out as is shown for two different types of possessive constructions below:

(82) a. OF-POSSESIVE
Gil šavar le-Rina et ha-miskafayim šel Sigal
Gil broke to-Rina Acc the-glasses of Sigal
'Gil broke Sigal's glasses on Rina' (Landau, 1999, ex. 9)

b. CONSTRUCT STATE POSSESSIVE
Gil šavar le-Rina et miskafei ha-more
Gil broke to-Rina Acc glasses the-teacher
'Gil broke the teacher's glasses on Rina'

The data in (82) are important evidence against possessor raising and control analyses: if possessor-dative constructions indeed involved an empty category in the possessor position of the direct object, then it should be impossible to fill that position with some other element. Exceptional case-marking (ECM) constructions do illustrate such an impossibility: in ECM constructions the argument that, by hypothesis, raises to the matrix clause to check Case can never be pronounced both in the matrix and in the embedded clause.[11]

(83) *I believe him he to be a liar.

[11] Thanks to Alec Marantz (p.c.) for pointing this out in this connection.

2.2.2. Affectedness

According to the low applicative analysis, the meanings of possessor datives differ from their genitive counterparts in exactly the same way as (84a) below differs from (84b):

(84) a. "POSSESSOR DATIVE": I stole the keys from Mary's possession.
b. GENITIVE: I stole Mary's keys.

The sentence in (84a) asserts that Mary loses something while the sentence in (84b) does not. In other words, the sentence with the genetive possessor simply says that Mary is the owner of the keys but it does not assert that Mary, at the time of the stealing, has the keys. (84a), on the other hand, does and this is what I take to be the source of the intuition of affectness in possessor dative constructions: they always assert that the dative, at some level, loses something.

(85) a. "POSSESSOR DATIVE": #I stole the keys from Mary's possession when she didn't have them.
b. GENITIVE: I stole Mary's keys when she didn't have them.

It must be noted though that the "losing" in low source applicatives can be of rather abstract nature. For example, consider the Finnish low source applicative in (86).

(86) FINNISH LOW SOURCE APPLICATIVE

Riikka	näki	Sanna-lta	aluspaida-n.
Riikka.NOM	saw	I-ABL	undershirt-ACC

'Riikka saw Sanna's undershirt' (Lit: 'Riikka saw an undershirt from Sanna')

This construction is perfectly grammatical even though the event described is a seeing-event, which does not plausibly result in a loss of the object that is seen. Nevertheless, (86) does imply that something is lost: the *privacy* of the intimate piece of clothing in question. Consequently, 'see' does not yield a felicitous source applicative unless the entity that is seen is something that the subject of the sentence is not supposed to see. Thus, if we replace 'undershirt' in (86) with 'overcoat', the sentence sounds highly unnatural (without a context where Riikka is not supposed to see the overcoat), (87).

(87)

#Riikka	näki	Sanna-lta	päällystaki-n.
Riikka.NOM	saw	I-ABL	overcoat-ACC

'Riikka saw Sanna's overcoat ' (Lit: 'Riikka saw an overcoat from Sanna')

Landau presents similar data from Hebrew. The example in (88a), where the object of seeing is a private body part, is reported as grammatical, whereas (88b), where is the entity that is seen is a house, is judged ungrammatical.

(88) a. Gil ra'a le-Rina et ha-pupik
Gil saw to-Rina ACC the-belly button
'Gil saw Rina's belly button' (Landau, 1999, footnote 14, (i))

b. *Gil ra'a le-Rina et ha-bayit
Gil saw to-Rina ACC the-house
'Gil saw Rina's house' (Landau, 1999, ex. 49a)

Landau, however, draws the generalization that in Hebrew verbs such as 'see' simply do not cobine with possessor datives and takes the sentence in (88a) to belong to some different phenomenon. According to Landau, (88a) illustrates a "quasi-idiomatic" construction that is restricted to inalianable possession (including clothes). Further, Landau notes that the acceptability of the construction increases with intimate body parts and decreases with neutral ones. In other words, the semantic restrictions parallel the Finnish ones precisely: the possessor dative is only acceptable with 'see' when the seeing-event makes something public that was private before. And, contrary to Landau's generalization, the object that becomes public does not need to be inalianably possessed; it simply needs to be "secret", in some way. Thus, for example, if the direct object denotes documents that the subject of the sentence is not supposed to see, a possessor dative is perfectly acceptable, as shown in (88a). The corresponding Finnish sentence is also fully felicitous, (89b).

(89) a. HEBREW: 'SEE' + SOURCE APPLICATIVE + AN ALIANABLY POSSESSED "SECRET" OBJECT
Gil ra'a le-Rina et ha-mismaxim
Gil saw to-Rina ACC the-documents
'Gil saw the documents that Rina had'

b. FINNISH: 'SEE' + SOURCE APPLICATIVE + AN ALIANABLY POSSESSED "SECRET" OBJECT
Mä olen nähnyt nii-ltä ne dokumenti-t.
I.NOM have seen they-ABL those document-PL.ACC
'I have seen the documents they have' (Lit: 'I have seen from them those documents')

Thus, source applicatives do always involve an implication of loss, but this loss does not need to be concrete. Notice that the same holds (at least to some extent) for recipient applicatives: in (90a) I do not get a flower, but rather a picture of a flower and in (90b) I do not get the paper, but rather the visual experience of it.

(90) a. He drew me a flower.
b. He showed me the paper.

Contrasts such as the one in (88) constitute strong evidence in favor of the source analysis and against the possessor-raising analysis. The possessor raising analysis offers no account for why possessor datives

should only be able to combine with a verb such as 'see' when the direct object is in some sense private. The low source analysis, on the other hand, accounts for these cases naturally since seeing an object that is publicly visible results in no loss for the person responsible for the object, whereas seeing an object that is not meant for the public eye does take away the privacy of that object from the person who has it.

However, some of Landau's data will still remain a puzzle for the present analysis. In particular, he points out that even though the verb 'see' does not combine with a possessor dative when the direct object is something like a house, the verb 'look at' does:

(91) a. HEBREW: 'SEE' + POSSESSOR DATIVE
*Gil ra'a le-Rina et ha-bayit
Gil saw to-Rina ACC the-house
'Gil saw Rina's house' (Landau, 1999, ex. 49a)

b. HEBREW: 'LOOK AT' + POSSESSOR DATIVE
Gil histakel le-Rina et ha-bayit
Gil looked-at to-Rina ACC the-house
'Gil looked at Rina's house' (Landau, 1999, ex. 49a)

(91b) is quite unnatural as a Finnish source applicative and at present I do not have an analysis of this case.[12] This section has investigated low source applicatives only and this has been carried out mainly on the basis of the data reported by Landau (rather than via consultant work). However, Hebrew has many other types of datives as well, including so-called "ethical" datives and datives in traditional double-constructions, and therefore, a more thorough investigation will hopefully show that (91b) categorizes into one of those other types.

2.2.3. Lack of agentive interpretations for the dative argument

Since raising analyses of the possessor dative construction generate the dative as a DP-internal possessor, these analyses predict that possessor datives should have the same range of interpretations as possessors inside DPs. But this is not born out: unlike possessors inside DPs, dative “possessors” cannot be interpreted as agents (Kempchinsky 1992, Landau 1999):

[12] Landau attributes the contrast between 'see' and 'look at' to the fact that the external argument of 'see' is not an agent while the external argument of 'look at' is. He hypothesizes that non-agentive external arguments are generated in Spec VP while agents are generated in (the higher) Spec *v*P (our VoiceP). Spec VP is the position to which possessor datives must raise to check dative case and, therefore, if this position is filled by the external argument, the possessor dative cannot check its case. But as already noted, the generalization that 'see' cannot combine with

(92) a. AGENTIVE DP-INTERNAL POSSESSOR:
Construct state possessive:
harisat ha-cava et ha-'ir
destruction the-army ACC the-city
'the army's destruction of the city'

Of-possessive
ha-harisa šel ha-cave et ha-'ir
the-destruction of the army ACC the-city
'the army's destruction of the city'

b. HEBREW POSSESSOR DATIVE:
*cilamti la-cava et ha-harisa šel ha-'ir.
I-photographed to-the-army Acc the-destruction of the-city
'I photographed the army's destruction of the city'

c. SPANISH POSSESSOR DATIVE:
*Los periodistas le presenciaron ejecuciones de varios prisioneros al ejército.
the journalists Cl witnessed executions of various prisoners to army
'The journalists witnessed the army's executions of various prisoners on it'
(Kempchinsky 1992: ex. 17b)

This contrast is of course only surprising under the possessor-raising analysis and not under the low applicative analysis, where possessor datives are not equated with genitive possessors in any way. Under the low applicative analysis, we should expect to find external argument like interpetations on the dative only in cases where 'x got/lost y' is a reasonable paraphrase of the relationship between an external argument x and an event nominal y. An illustrative contrast can be found in the English double object construction where indirect objects can easily be interpreted as Experiencers but not as Agents.

(93) a. his departure
*I caused him a departure/ the departure. (#he got a departure)
b. his evaluation of the students
*I caused him an evaluation of the students (#he got an evaluation)

(94) a. his annoyance
I caused him annoyance (he got annoyance)
b. his mental break-down
I caused him a mental break-down. (he got a mental break-down)

---

possessor datives does not hold, and therefore Landau in fact makes the wrong prediction for 'see' and possessor datives.

2.2.4. Transitivity restrictions

One of the defining features of the possessor dative construction is that the possessee can never be an external argument (Borer and Grodzinsky, 1986).

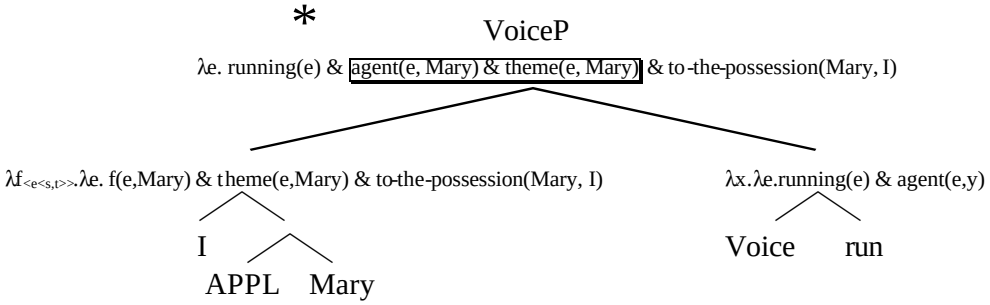
(95) a. ✓UNACCUSATIVE:
ha-kelev ne'elam le-Rina
the-dog disappeared to-Rina
'Rina's dog disappeared on her'

b. *UNERGATIVE:
*ha-kelev hitrocec le-Rina
the-dog ran-around to-Rina
'Rina's dog ran around on her'
(Landau, 1999, ex. 11)

If possessor datives are low applied arguments, the impossibility of relating a dative argument to an external argument is not surprising: low applicative relations, by definition, relate source and recipient arguments to the direct object. In other words, (95b) is ungrammatical for the same reason that (85a) is: a low applicative head specifies that the object being transferred is a theme argument of the verb that the APPL-P combines with; if we combine APPL-P with a constituent in which the unsaturated argument is an agent, a contradition arises (indicated by the box in (96b)):

(96) a. *I ran Mary.
(Intended meaning: 'To me ran Mary', or 'Mary ran to my possession')

b. RELATING A LOW APPLIED ARGUMENT TO AN EXTERNAL ARGUMENT RESULTS IN A CONTRADICTION:



Thus the incompatibility of possessor datives with external arguments is the same fact as the general incompatibility of low applied arguments with external arguments.

Laudau's possessor raising analysis attributes the transitivity restriction to a case problem. He assumes that dative case is available only in the specifier position of V and since, by hypothesis, external arguments are introduced by *v* (our Voice) above the VP, a dative inside the external argument would remain caseless. Thus Landau's explanation differs from the present one in that it does not relate the observed transitivity restriction to any general phenomenon and instead relies on the specifics of Case assignment in Hebrew.

2.2.5. Quantifier binding into the direct object

One of Landau's arguments against a double object account of Hebrew possessor datives is that quantified datives can bind into the direct object only if they are possessor datives, not if they are datives in a double object construction. This contrast, Landau argues, is predicted by an analysis which posits an empty category inside the direct object in possessor dative constructions but not in double object constructions.

(97) a. POSSESSOR DATIVE: BOUND VARIABLE READING OK.
Gil saraf le-kol yalda et ha-xulca haxi yafa.
Gil burned to-every girl ACC the-shirt the-most pretty
'Gil burned every girl's prettiest shirt'

b. DOUBLE-OBJECT: BOUND VARIABLE READING BAD OR REQUIRES RICH CONTEXT
#Gil natan le-kol yalda et ha-xulca haxi yafa.
Gil gave to-every girl Acc the-shirt the-most pretty
'Gil gave every girl her prettiest shirt' (Landau, 1999: ex. 29a-b)

However, the reported contrast dissappears as soon as pragmatics is controlled for. In (90b) the intended interpretation is such that Gil gives the girls shirts that they already own. If we construct a situation where this type of an interpretation is highly plausible, as in (98), a bound variable interpretation is easily obtained.

(98) DOUBLE-OBJECT: BOUND VARIABLE READING OK
ha-menahel natan le-kol poel et ha-maskoret
the-manager gave to-every worker ACC the-salary
'The manager gave every worker their salary'

Thus there appears to be no true contrast between possessor datives and double object constructions with respect to quantifier binding, as predicted by the proposal that they are both low applicatives. What seems to be the case in both constructions is that context allows us to interpret the definite descriptions occurring as direct objects as containing the implicit variable *his/her*. Landau also observes that implicit variables can be made available by context even in cases where there is no empty category to be bound (as in 'In every family, *the eldest* gets *the largest room*', Landau (1999, p. 16)). But for him, what makes possessor datives different from such cases is that with possessor datives the bound variable readings are readily available without any special context. Under the present analysis the easy availability of implicit variables in possessor datives is not surprising since the hypothesized Source relation between the dative and accusative arguments entails that prior to the event described by the verb, the dative argument stands in the HAVE-relation to the accusative argument (see §2.2.1 above). No such entailment holds for low Recipient applicatives and, therefore, bound variable readings with Recipient applicatives require a

context where the individual named by the accusative argument plausibly belongs to the individual named by the dative argument, as in (98).

2.2.6. Possessor datives as controllers

As a further argument against a double object account of possessor datives, Laudau observes that indirect objects in double object constructions can control into infinitival predicates while possessor datives cannot.

(99) a. POSSESSOR DATIVE: BAD AS A CONTROLLER
*Gil lixlex la-Rina$_1$ [et ha-satiax [PRO$_1$ lenakot]]
Gil dirtied to-Rina ACC the-carpet PRO to clean
'Gil dirtied Rina$_i$ a carpet [PRO$_1$ to clean]'
(Landau: ex. 45)

b. DATIVE IN A DOUBLE OBJECT CONSTRUCTION: GOOD AS A CONTROLLER
Gil masar la-Rina$_1$ [et ha satiax [PRO$_1$ lenakot]]
Gil handed to-Rina ACC the-carpet PRO to-clean
'Gil handed Rina the carpet to clean' (Landau: ex. 44b)

According to Landau, controllers in obligatory control environments must be arguments of the predicate of which the infinitive containing the PRO is an argument (Chomsky, 1981; Manzini, 1983; Koster, 1984). This, according to Landau, is illustrated in the data below where *Mary*, which is not an argument of the matrix verb in any of the sentences in (100a-d), consistently fails as a controller.

(100) a. Sara told Mary's brother [PRO to behave himself/*herself].
b. [PRO to behave himself/*herself in public] is necessary for Mary's brother.
c. Sara gave Mary's brother [a task [PRO to test himself/*herself on]].
d. [a task [PRO to test himself/*herself on]] would be challenging for Mary's brother.
(Landau: ex. 43)

Landau treats the ability to control as a test for argumenthood and takes the inability of possessor datives to control as evidence for the possessor raising analysis: in the possessor raising analysis the dative is semantically an argument of the possessee, not the verb, and therefore its inability to control is predicted.

The double object account of possessor datives predicts that the contrast in (99) must be due to the fact that in the traditional double object construction, (99b), the dative bears the Recipient relation to the direct object, while in the possessor dative construction, (99a), the dative bears a Source relation instead. The data below suggest that Sources are indeed impossible as controllers, regardless of their argument

status. Recipients, on the other hand, work as controllers even when they are arguments of prepositions, i.e. not of the matrix verb.

RECIPIENT AND SOURCE ARE BOTH ARGUMENTS OF THE MATRIX VERB:

(101) a. Recipient: I received a carpet to clean.
b. Source : *I lost a carpet to clean.

RECIPIENT AND SOURCE ARE BOTH ARGUMENTS OF P (I.E. NOT ARGUMENTS OF THE MATRIX VERB):

(102) a. I gave the watch to Gil to repair.
b. *I took the keys from Gil to search for.
(i.e.: *I took the keys from Gill with the intention that he, Gill, would search for them*)

(103) (Context: Rina needs some chairs for a party but also needs to get rid of a big table to make room for dancing)
a. I lent a chair to Rina to use at the party.
b. *I borrowed a table from Rina to get rid of before the party.
(i.e.: *I borrowed a table from Rina so that she, Rina, could get rid of it before the party)*

(104) a. Gil handed a carpet to Rina to clean.
b. *Gil dirtied a carpet from Rina to clean.

Thus there is evidence that possessor datives do not fail as controllers because they are not arguments of the verb but because of the semantic relation Source that they bear. See Bach (1982) for extensive discussion on the semantic constraints on control in purpose clauses.

Table 3 summarizes our results so far.

PROPERTY OF POSSESSOR DATIVE CONSTRUCTION	PREDICTED BY THE POSSESSOR-RAISING ACCOUNT?	PREDICTED BY THE LOW APPLICATIVE ACCOUNT?
Pseudo-possessive interpretation	YES (dative is semantically a possessor)	YES (entailment of the Source relation)
Affectedness	NO (dative should be semantically equivalent to its genitive counterpart)	YES (because the Source relation entails that the dative actually had the direct object at the time of the event, i.e. the dative was not simply the possessor of it)
Lack of agentive interpretations for the dative argument	NO (the dative should have the same range of interpretations as a genitive possessor)	YES (there is no expectation that the range of interpretation for the dative should correspond to that of genitive possessors)
Transitivity restrictions	YES (follows from the assumption that dative case is only available under the external argument, i.e. at the VP-level)	YES (possessor datives exhibit the general distributional restrictions of low applicatives)
Quantifier binding into the direct object is possible from the indirect object of a double object construction but not from dative of a possessor dative construction	When pragmatics is controlled for, contrast dissappears.	
Possessor datives cannot control while datives in double object constructions can	YES (since genitive possessors fail as controllers, possessor datives should as well)	YES (Sources are in general bad as controllers, regardless of their argument status)

TABLE 3: Predictions of the possessor-raising and double object analyses of possessor dative constructions.

Our results so far strongly support the low applicative analysis of possessor dative constructions: in this analysis the properties of the possessor dative construction follow naturally from the syntax and semantics of low applicatives. No additional assumptions about case assignment are needed. However, the low applicative analysis does face one problem: in Hebrew possessor datives can also relate to a DP inside a PP, which is not possible with low applied arguments. These data are discussed in the following section.

2.2.7. A puzzle: possessor datives with PPs

Hebrew possessor datives have one distributional property that is incompatible with the low applicative analysis: they can relate to a DP inside a PP complement of an unergative verb:

(105) Gil gar le-Rina ba-xacer.
Gil lives to-Rina in-the-yard
'Gil lives in Rina's yard'

Such constructions are clearly not low applicatives. Neither low recipients nor low sources can relate to PP-internal DPs. This is illustrated below for the English recipient applicative and for Finnish recipient and source applicatives.

(106) ENGLISH: RECIPIENT RELATES TO A PP-INTERNAL DP
*John sat Mary in the car.
(Intended meaning: 'John sat in a car which was to Mary's possession')

(107) a. FINNISH: RECIPIENT RELATES TO A PP-INTERNAL DP
*Jussi istui Riina-lle auto-ssa
Jussi.NOM sat Riina-ALL car-INESS
'Jussi sat in Rina's car'
(Intended meaning: 'Jussi sat in a car that was to Riina's possession)

b. FINNISH: SOURCE RELATES TO A PP-INTERNAL DP
*Jussi istui Riina-lta auto-ssa
Jussi.NOM sat Riina-ABL car-INESS
'Jussi sat in Rina's car'
(Intended meaning: 'Jussi sat in a car that was from Riina's possession)

The low applicative analysis of possessor dative constructions then predicts that those cases in which a dative relates to a PP-internal DP must belong to a separate phenomenon from possessor datives in general. This separate phenomenon is not, however, possessor raising, since filling in the syntactic position of a possessor is possible in these cases, as well:

(108) Gil gar le-Rina ba-xeder šel savta šel-o
Gil lives to-Rina in-the-room of grandmother of-him
'Gil lives in Rina's grandmother's room'

Finnish provides an interesting clue as to the nature of the element that might be allowing the addition of the dative argument in these cases. In Finnish, Recipient and Source applicatives are realized with overtly different case markers: Recipients carry allative case (which has the semantics of 'onto') while Sources are realized with ablative case (which has the semantics of 'from'). As was seen in (107), neither allative Recipients nor ablative Sources can appear in the Hebrew type prepositional possessor dative construction. However, one can make the Finnish sentences grammatical by removing the directionality from the case marker. If the additional argument bears adessive case, which simply means 'on', the construction is grammatical:

(109) Jussi istui Riina-lla auto-ssa
Jussi.NOM sat Riina-ALL car-INESS
'Riina had Jussi sitting in the car'

But as the translation of (109) indicates, the meaning of this sentence is quite different from low applicatives; the native speaker intuition about the meaning of (109) is that this sentence describes Riina as standing in a possessive relation (of sorts) to the *situation* of Jussi sitting in a car. Indeed adessive case is the case that Finnish uses in possessive constructions in general. Finnish lacks the verb HAVE and realizes possessive sentences with the copula and adessive case on the possessor.

(110) Riina-lla on auto.
Riina-ADE is car
'Riina has a car' (Lit: 'On Riina is a car')

As Freeze (1992) shows, languages in general divide into so called BE-languages, which have the Finnish type strategy for expressing possession, and so-called HAVE-languages, where possession is expressed with the verb HAVE.

Let us then hypothesize that the element that introduces the possessor dative in the problematic Hebrew cases is the same element that in BE-languages introduces possessors in regular possessive sentences. For this to be true, Hebrew would need to have this type of element, i.e. Hebrew would need to be a Freezian BE-language. This prediction is indeed born out: Hebrew lacks the verb HAVE and realizes possession with copular constructions where the possessor bears dative case.

(111) yeš le-Jon yelel
is to-Jon son
'Jon has a son'

This hypothesis predicts that the Hebrew type constructions where a possessor dative occurs with a PP should only be possible in langauges that lack the verb HAVE. So far this prediction has been tested for two HAVE-languages that have low source applicatives, and indeed in both of these languages the relevant construction is impossible:

	✓Low source applicative	*PD + PP & no direct object.
German	Man hat ihm seine Frau getötet one has him his wife killed 'They killed a wife from him'	*Hans hat ihm in seinem Hof gewohnt. Hans has him in his yard lived 'Hans had him living in his yard'
Spanish	Juan le robó un anillo a María. Juan dat-cl stole a ring to 'Juan stole a ring from Maria'	*Juan (le) vivió a María en el patio. Juan dat-cl lived to Maria in the patio 'Maria had Juan living in the patio'

TABLE 4: HAVE–languages and possessor datives

	✓Low source applicative	✓PD + PP & no direct object.
Hebrew	ha-yalda kilkela le-Dan et ha-radio. the-girl spoiled to-Dan Acc the-radio ‘The girl broke a radio from Dan’	Gil gar le-Rina ba-xacer. Gil lives to-Rina in-the-yard 'Rina has Gil living in the yard'
Finnish	Mari rikkoi Sami-lta radio-n. Mari broke Sami-FROM radio-ACC 'Mari broke a radio from Sami'	Mari asuu Riina-lla takapiha-lla. Mari lives Riina-ADE backyard-ON ‘Riina has Mari living in the backyard’

TABLE 5: BE–languages and possessor datives.

These data show that the possibility of adding a possessor dative to a PP-modified unergative does not follow from the possibility of having possessor dative constructions in general. The HAVE languages German and Spanish both have possessor datives, i.e. low source applicatives, but neither allows such a dative to be added to an unergative with a PP-modifier. In contrast, Hebrew and Finnish, which both lack the verb HAVE, allow the addition of a dative, or an adessive argument, into a PP-modified unergative. Given these data, it seems safe to conclude that the problematic Hebrew configuration is not a core property possessor datives, and that the low applicative analysis of possessor datives can be maintained. The precise structural analysis of the Hebrew and Finnish non-applicative constructions will be left here for future investigation.

2.3. Japanese adversity constructions as high and low applicatives

This section discusses so-called adversity passives in Japanese and shows that (i) Japanese adversity passives divide into two classes (Kubo, 1992) and that (ii) these two classes have the core semantic properties of high and low applicatives.

In addition to a regular passive, (112a), Japanese has a mysterious construction called the adversity passive (e.g. Hasegawa, 1964; Howard and Niyekawa-Howard, 1976; N. McCawley, 1972; Kuno, 1973; Oehrle and Nishio, 1981; Miyagawa, 1980, 1989; Kubo, 1992; Kuroda, 1965, 1979, 1993; Shibatani, 1994).[13] The adversity passive is puzzling because there the passive morphology does not suppress an argument, as usual, but rather introduces a new one (boxed in (112b)). This new argument gets interpreted as somewhow affected by the event descibed by the verb (112b), just like the possessor datives discussed in the previous section.

[13] The adversity passive is often also called the *indirect* passive as opposed to the direct, or regular, passive.

(112) a. REGULAR PASSIVE
Heya-ga (dorobou-ni-yotte) aras-are-ta
room-NOM thief-BY destroy-PASS-PAST
'The room was destroyed (by the thief)'

b. ADVERSITY PASSIVE
Taro-ga dorobou-ni heya-o aras-are-ta
Taro-NOM thief-DAT room-ACC destroy-PASS-PAST
'Taro's room got destroyed on him by the thief'

The adversity passive involves an obvious "non-core" argument whose origin calls for explanation. In what follows I will first show evidence from Kubo (1992) that adversity passives in fact divide into two different types: in one type the affected argument obligatorily bears a possessive-like relation to the direct object while in the other no such requirement holds. Given this semantic difference it is plausible to hypothesize that the two types examplify low and high applicatives. Section 2.3.2 shows that the two types of adversity passives indeed have the core semantic properties of high and low applicatives.

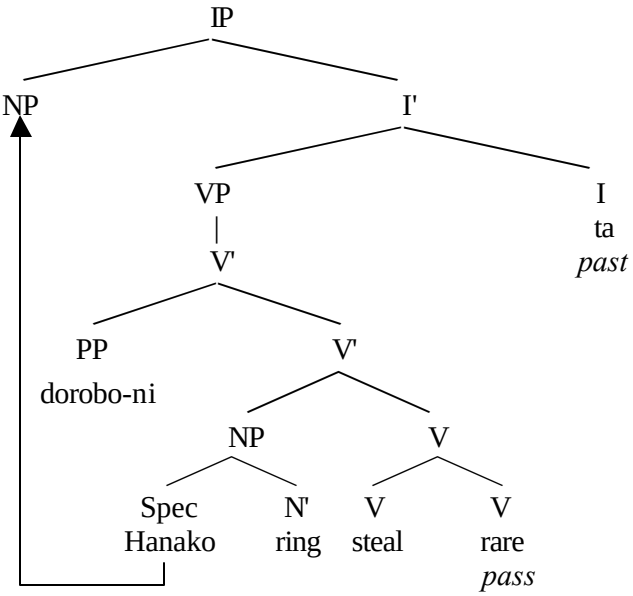
2.3.1. Kubo (1992): two types of adversity passives

Kubo (1992) shows that Japanese adversity passives divide into two different classes. In one type the affected argument is interpreted as the possessor of the direct object, (113). In the other type, the affected argument bears a malefactive relation to the event described by the verb and no necessary relation to the object, (114). Kubo argues that the possessive adversity passive is a possessor raising construction while in the malefactive construction the affected argument is introduced by the passive morphology, which, according to Kubo, optionally assigns an external Malefactive θ-role. Kubo calls the possessor-raising construction a "gapped" passive as it involves a trace in the direct object and the malefactive construction a "gapless" passive since it involves no such trace.

(113) GAPPED PASSIVE

Hanako-ga dorobo-ni yubiwa-o to-rare-ta.
Hanako-NOM thief-DAT ring-ACC steal-PASS-PAST
'Hanako was affected by the thief stealing her ring'

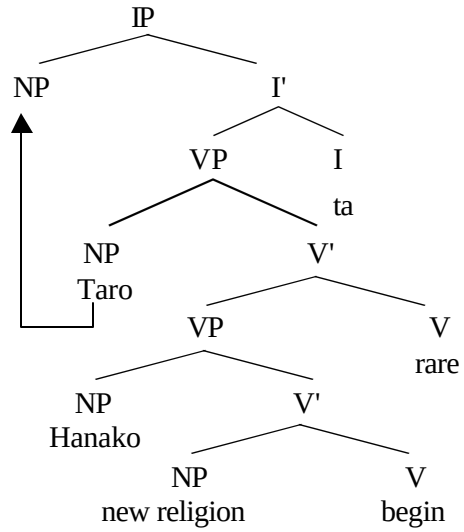
Kubo's (1992) analysis:



(114) GAPLESS PASSIVE

Taro-ga Hanako-ni shinkoushukyoo-o hajime-rare-ta
Taro-NOM Hanako-DAT new religion-ACC begin-PASS-PAST
'Taro was adversely affected by Hanako starting a new religion on him'

Kubo's (1992) analysis:



Kubo shows that gapped and gapless passives differ from each other in various ways. First, as already mentioned, the gapped passive is only possible when there is a possessive relation between the affected argument and the direct object while this is not a requirement for gapless passives. Second, the agent-phrase in the gapped passive has the properties of a by-phrase while the agent-phrase of the gapless passive behaves as an argument. Thus, for example, the dative case-marker in the agent-phrase of the gapped passive can be replaced by the preposition *ni-yotte*, which in Japanese forms the typical by-phrase of passives. In contrast, replacing the dative marker *ni* with *ni-yotte* is impossible with the gapless passive.

(115) GAPLESS PASSIVE (NO POSSESSIVE RELATIONSHIP)

a. ✓NI
Nixon-wa Kennedy-ni Martin Luther King-o tasuke-rare-ta
Nixon-TOP Kennedy-DAT Martin Luther King-ACC rescue-PASS-PAST
'Kennedy rescued Martin Luther King to Nixon's detriment'

b. *NI-YOTTE
*Nixon-wa Kennedy-ni-yotte Martin Luther King-o tasuke-rare-ta
Nixon-TOP Kennedy-BY Martin Luther King-ACC rescue-PASS-PAST
'Martin Luther King was rescued by Kennedy to Nixon's detriment'
(Kubo 1992: ex. 19b)

(116) GAPPED PASSIVE (POSSESSIVE RELATION HOLDS):

a. ✓NI
Nixon-wa Kennedy-ni/ni-yotte inochi-o tasuke-rare-ta
Nixon-TOP Kennedy-DAT/BY life-ACC save-PASS-PAST
'Nixon had Kennedy save his life'

b. ✓NI-YOTTE
Nixon-wa Kennedy-ni-yotte inochi-o tasuke-rare-ta
Nixon-TOP Kennedy-BY life-ACC save-PASS-PAST
'Nixon had Kennedy save his life'
(Kubo 1992: ex. 19b)

Third, in the gapped passive the affectee can be inanimate while this is impossible in the gapless passive.

(117) a. INANIMATE AFFECTEE + GAPPED PASSIVE (POSSESSIVE RELATION HOLDS)
Sono daishujutsu-ga (Yamada ishi-niyotte) shittoo-o kaishis-are-ta
that big.operation-NOM Yamada-by performance-ACC begin-PASS-PAST
'That big operation had Dr. Yamada start its performance' (Kubo 1992: ex. 20a)

b. *INANIMATE AFFECTEE + GAPLESS PASSIVE (NO POSSESSIVE RELATION)
*Iwa-ga ame-ni fu-rare-ta
rock-NOM rain-DAT fall-PASS-PAST
'The rock had rain fall on it' (Kubo 1992: ex. 21a)

The table below summarizes these differences:

	Gapped adversity passive	Gapless indirect passive
Possessive relation required?	YES	NO
When the verb is transitive, can the ni-phrase be replaces by a *ni-yotte*-phrase (i.e. a by-phrase)?	YES	NO
Can the nominative affectee be inanimate?	YES	NO

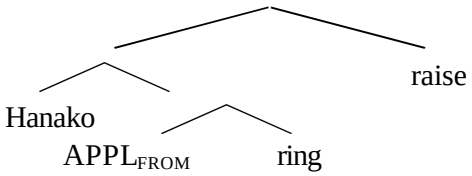
TABLE 6: Diagnostics for distinguishing between gapped and gapless Japanese adversity passives (Kubo 1992).

Thus Japanese gapped and gapless adversity passives resemble low and high applicatives in that the gapped passive must involve a possessor-like relationship between the affected argument and the direct object (like low applicatives), while in the gapless passive this type of a relationship is not necessary (paralleling the properties of high applicatives). The section below investigates whether Japanese adversity passives pattern as low and high applicatives with respect to the core diagnostics employed in this chapter.

2.3.2. Diagnosing adversity passives as high and low applicatives

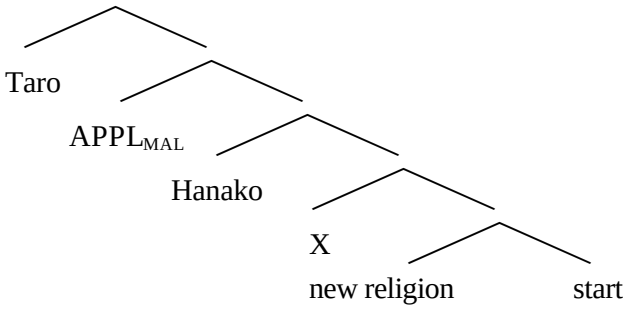
This section tests the hypothesis that Japanese gapped and gapless adversity passives are low and high applicatives, respectively, and that they are, therefore, associated with the (partial) structures indicated below:

(118) GAPPED PASSIVE AS A LOW SOURCE APPLICATIVE
Hanako-ga dorobo-ni yubiwa-o to-rare-ta.
Hanako-NOM thief-DAT ring-ACC steal-PASS-PAST
'Hanako was affected by the thief stealing her ring'



(119) GAPLESS PASSIVE AS A HIGH MALEFACTIVE APPLICATIVE

Taro-ga Hanako-ni shinkoushukyoo-o hajime-rare-ta
Taro-NOM Hanako-DAT new religion-ACC begin-PASS-PAST
'Taro was adversely affected by Hanako starting a new religion him'



These two structures focus on the applicative hypothesis and leave some other aspects of the syntax of these constructions open. For example, the structures make no claims about the origin of the passive morphology in Japanese adversity passives. Further, the nature of the head that serves to introduce the agent phrase is left open in both constructions. However, if this head was Voice in the case of the hypothesized high applicative, i.e. the gapless passive, this construction would constitute a counterexample to the generalization that high applicative heads are merged below the external argument, and not vice versa. Therefore it is important to investigate to what extent the dative argument in gapless passives has the properties of a true external argument (i.e. argument of Voice). I will return to this question at the end of this section, once the high/low applicative hypothesis has been tested.

The predictions of the high/low applicative hypothesis about Japanese gapless and gapped adversity passives are stated in Table 7. The depictive diagnostic is unfortunately not predicted to yield a contrast between gapped and gapless passives since in both cases the affected argument A-moves to subject and we have seen that such A-movement always licences a depictive secondary predicate (§ 2.1.3.4).

	Transitivity: Possible from unergative?	Verbal semantics: Compatible with a static verb?	Depictives: Is applied argument available for depictive modification?
Gapped passive (low source applicative by hypothesis)	NO	NO	YES (A-movement should license the depictive)
Gapless passives (high malefactive applicative by hypothesis)	YES	YES	YES

TABLE 7: Predictions of the applicative analysis of Japanese adversity passives.

The predictions of the transitivity and verbal semantics diagnostics are borne out while the predictions of the depictive diagnostic are not.

The data in (120) illustrate that gapless passives are possible from unergatives while gapped passives are not. In order to force a gapped analysis in (120a), an inanimate affectee is used. Notice that a contrast is obtained even though 'the team' consists of animate entities.[14]

TRANSITIVITY DIAGNOSTIC:

(120) a. * INANIMATE AFFECTEE (FORCES A GAPPED/LOW ANALYSIS) + UNERGATIVE BASE
??Chiimu-ga coochi-ni nak-are-ta
team-NOM coach-dat cry-PASS-PST
'The team was affected by it's coach crying'

b. ANIMATE AFFECTEE (ALLOWS A GAPLESS/HIGH ANALYSIS) + UNERGATIVE BASE
Taro-ga coochi-ni nak-are-ta
Taro-NOM coach-dat cry-PASS-PST
'Taro's coach cried on him'

Thus the transitivity restrictions of gapped passives parallel those of low applicatives. The same holds for their semantic restrictions. (121) shows that gapped passives are impossible with a static verb such as *hold* which does not plausibly result in transfer of possession while gapless passives are entirely natural with such a verb. The use of *ni-yotte* instead of *ni* forces the gapped analysis in (121a):

[14] Kubo's (1992) examples of inanimate affectees are also of this sort. For example, see example (105) above where the inanimate affectee is 'the big operation' which can also be construed as animate by conceptualizing it to refer to the people that run the operation. The point, however, is that the gapless passive does not tolerate this type of an affectee.

VERBAL SEMANTICS DIAGNOSTIC:

(121) a. GAPPED (=LOW) ANALYSIS FORCED BY *NI-YOTTE* + STATIC VERB
*Taro-ga Jiro-ni-yotte sara-o mot-are-ta
Taro-NOM Jiro-BY plates-ACC hold-PASS-PAST
'Taro was affected by Jiro holding the plates'
(Context: the plates are expensive and Jiro is clumsy, therefore Taro would prefer for Jiro to not hold the plates)

b. GAPLESS (=HIGH) ANALYSIS ALLOWED BY *NI* + STATIC VERB
Taro-ga Jiro-ni sara-o mot-are-ta
Taro-NOM Jiro-DAT plates-ACC hold-PASS-PAST
'Taro was affected by Jiro holding the plates'

This semantic restriction of gapped/low adversity passives constitutes evidence against a possessor raising analysis of this construction; on such an analysis, there is no reason why genitive possessors should be incompatible with static verbs (*I held John's plate*). The source-applicative analysis, on the other hand, predicts that the gapped passive should not be compatible with verbs, such as *hold*, that cannot be construed as resulting in transfer of possession.

In the case of Japanese adversity constructions, the depictive diagnostic is unfortunetaly not predicted to yield a contrast between gapped and gapless passives. Even though the affected argument of the gapped passive should be unavailable for a depictive in its base position, its A-movement to subject should make it available for a depictive in its derived position. However, this prediction is not born out. The affected argument of both gapped and gapless adversity passive is *unavailable* for a depictive. The (a) examples give a grammatical example of the adversity passive being tested, the (b) examples show that the affected argument cannot be modified by a depictive and the (c) examples show a grammatical instance of the depictive in question.

DEPICTIVE SECONDARY PREDICATION DIAGNOSTIC:

(122) a. GAPLESS (=HIGH) ANALYSIS FORCED BY IMPLAUSIBILITY OF A POSSESSOR-RELATION
Taroo-ga ame-ni hur-are-ta.
Taroo-NOM rain-DAT fall-PASS-PAST
'Taro got rained on'

b. GAPLESS (=HIGH) ANALYSIS FORCED BY IMPLAUSIBILITY OF A POSSESSOR-RELATION + DEPICTIVE SECONDARY PREDICATE
**Taroo-ga hadaka-de* ame-ni hur-are-ta.
Taroo-NOM naked rain-DAT fall-PASS-PAST
'*Taro* got rained on *naked*'

c. GRAMMATICAL INSTANCE OF THE DEPICTIVE
Taroo-ga ie-o hadaka-de nutta.
Taro-NOM house-ACC naked painted
'Taro painted the house naked'

(123) a. GAPPED (=LOW) ANALYSIS FORCED BY *NI-YOTTE*
Musume-wa dorobou-ni-yotte hairpin-o tor-are-ta.
girl-TOP thief-BY hairpin-ACC steal-PASS-PAST
'The girl was affected by the thief stealing her hairpin'

b. GAPPED (=LOW) ANALYSIS FORCED BY *NI-YOTTE* + DEPICTIVE SECONDARY PREDICATE
**Musume-wa kimono-sugata-de* dorobou-ni-yotte hairpin-o tor-are-ta.
girl-TOP kimono-dress thief-BY hairpin-ACC steal-PASS-PAST
'The girl was affected by the thief stealing her hairpin while she was dressed in a kimono'
(Context: the hairpin and the kimono make up an outfit and the girl is adversely affected by losing one of them)

c. GRAMMATICAL INSTANCE OF THE DEPICTIVE
Hanako-ga kimono-sugata-de mir-are-ta
Hanako-NOM dressed-in-kimono see-PASS-PAST
'Hanako was seen in a kimono'

To summarize, Japanese adversity passives have many of the properties of high and low applicatives and, therefore, the present framework appears promising for elucidating these structures. Importantly, if Japanese adversity passives exemplify high and low applicatives, they no longer constitute a mystery for the syntax-semantics mapping and instead spell out structures that are cross-linguistically common.

However, at least two outstanding questions remain about the properties of Japanese adversity adversity constructions. First, the analysis proposed here hypothesizes that gapped adversity passives are low source applicatives. However, low source applicatives of the usual type (i.e. of the type that is found in Korean, for example) are impossible in Japanese. The question then is, if Japanese has a low Source head, why can it only appear in adversity passives?

Second, the high applicative analysis of the gapless passive has the peculiar property that it seems to involve an external argument that is generated below an applied argument. For high applicatives in general, this is quite anomalous. One must then ask whether this agent-phrase is truly an external argument, i.e. an argument introduced by Voice. The data in (124c) shows evidence against this; here the gapless passive with an agent phrase is combined with a purpose-clause and, surprisingly, this combination is ungrammatical.

(124) a. GAPLESS (=HIGH) ANALYSIS FORCED BY UNERGATIVE BASE ('LAUGH')
Taroo-ga Hanako-ni waraw-are-ta.
Taroo-NOM Hanako-DAT laugh-PASS-PAST
'Taro was adversely affected by Hanako's laughing'

b. 'LAUGH' + PURPOSE PHRASE
Hanako-ga wazato warat-ta.
Hanako-NOM on.purpose laugh-PAST
'Hanako laughed on purpose'

c. GAPLESS (=HIGH) ANALYSIS FORCED BY UNERGATIVE BASE ('LAUGH') + PURPOSE PHRASE
*Taroo-ga Hanako-ni wazato waraw-are-ta.
Taroo-NOM Hanako-DAT on.purpose laugh-PASS-PAST
'Taro was adversely affected by Hanako's laughing on purpose'

In Japanese linguistics, one of the most famous tests for subjecthood has been the ability of an argument to antecede the reflexive *zibun* 'self'. The test has most commonly been used to distinguish between so-called lexical and productive causatives in Japanese (Shibatani, 1972, 1973, 1976). In lexical causatives the embedded agent cannot anteceded *zibun* while in productive causatives this is possible:

(125) a. LEXICAL CAUSATIVE: EMBEDDED CAUSEE CANNOT ANTECEDE *ZIBUN*
Taroo$_i$-wa Hanako$_j$-o zibun$_{i/*j}$-no kuruma-kara or-osi-ta.
Taro-TOP Hanako-ACC self-GEN car-FROM get.out-CAUSE-PAST
'Taroo cause Hanako to get out of his car'

b. PRODUCTIVE CAUSATIVE: EMBEDDED CAUSEE CAN ANTECEDE *ZIBUN*
Taroo$_i$-wa Hanako$_j$-o zibun$_{i/j}$-no kuruma-kara ori-sase-ta.
Taro-TOP Hanako-ACC self-GEN car-FROM get.out-CAUSE-PAST
'Taroo cause Hanako to get out of his/her car'
(Shibatani, 1976, ex. 32a, 35a)

Interestingly, even though the gapless passive does not combine with a purpose-phrase, as shown in (124c), the dative argument *is* a possible antecedent of *zibun*.

(126) GAPLESS (=HIGH) ANALYSIS FORCED BY UNERGATIVE BASE, AFFECTED ARGUMENT CAN ANTECEDE *ZIBUN*
Taroo$_i$-ga Hanako$_j$-ni zibun$_{i/j}$-no heya-de hirunes-are-ta.
Taro-NOM Hanako-DAT self-GEN heya-IN nap-PASS-PAST
'Taro was affected by Hanako napping in his/her room'

The question then is, does *zibun* diagnoze arguments of Voice or subjects in some looser sense. The data clearly support the latter: *zibun* can be anteceded by a derived subject, (127a) or even by a DP-internal possessor, (127b).

(127) a. A DERIVED SUBJECT CAN ANTECEDE *ZIBUN*
Taroo$_i$-ga Hanako$_j$-ni zibun$_{i/*j}$-no heya-de mi-rare-ta.
Taro-NOM Hanako-DAT self-GEN heya-IN see-PASS-PAST
'Taro was seen by Hanako in his/*her room'

b. A DP-INTERNAL POSSESSOR CAN ANTECEDE *ZIBUN*
Hanako$_i$-no zibun$_i$-no heya-de-no hirune
Hanako-GEN self-GEN room-IN-GEN nap.NOM
'Hanako$_i$'s nap in her$_i$ room'

Thus, the fact that the dative argument in in gapped (=high) adversity passives can antecede *zibun* does not show that the dative argument is an external argument, i.e. an argument of Voice. Crucially, *wazato* 'on purpose' cannot occur in a DP-internal context, (128a). Rather, it requires a verbal context and a true external argument, (128b).

(128) a. *WAZATO* 'ON PURPOSE' CANNOT OCCUR INSIDE A DP
*Hanako-no zibun-no heya-de-no wazato hirune
Hanako-GEN self-GEN room-IN-GEN on.purpose nap.NOM
'*Hanako's nap in her room on purpose'

b. *WAZATO* 'ON PURPOSE' IS ONLY GRAMMATICAL IN A VERBAL ENVIRONMENT
Hanako-ga zibun-no heya-de wazato hirunesi-ta.
Hanako-NOM self-GEN room-IN on.purpose nap-PAST
'Hanako napped in her room on purpose'

Thus the incompatibility of gapless (= high) adversity passives with *wazato* 'on purpose' is indeed informative about the argument status of the dative. Even though the dative argument is interpreted as an agent-participant in cases such as those in (124), it lacks structural properties of external arguments, such as compatibility with the purpose-phrase *wazato*. Thus it must be the case that Voice is not the only element that can introduce a DP that gets interpreted as bearing an agent-relation to the event described by the verb. This can also be seen from nominalizations where possessors can be interpreted as agents even in the absence of a Voice head. In this context I am unable to pursue further the question of what heads, other than Voice, can introduce agent arguments. Thus the nature of the head that introduces the dative in the gapless (=high) adversity passives will be left unspecified here. What is important for the present purposes is that there is evidence that a high applicative analysis of Japanese gapless adversity passives does not involve a structure that would constitute a counterexample to the generalization that Voice merges above high APPL and not vice versa.[15] See Ch. 4 for futher discussion on Voice.

[15] Our discussion so far of course still begs the questions of why the high malefactive head of the gapless adversity passive must merge into the structure last, i.e. why does Japanese realize a high applicative structure at all differently from say the Bantu languages? This question will be left for future work.

2.4. Other applicative asymmetries and previous approaches

This chapter has argued that the universal inventory of functional elements includes high and low applicative heads, which serve to introduce additional arguments into verbal argument structures. High applicatives relate new event participants to the event described by the verb, i.e. Benefactives, Malefactives, Instruments, and so forth, (129). Low applicatives, on the other hand, relate individuals to the direct object, and state that the direct object is either from the possession of this addional individual, (130a), or is intended to enter the possession of this new individual, (130b).

(129) HIGH APPL:
$\lambda x.\lambda e.$ APPL(e,x)
(collapsing APPL_{BEN}, $\text{APPL}_{\text{INSTR}}$. APPL_{LOC} and so forth)

(130) a. LOW-APPL-TO (RECIPIENT APPLICATIVE):
$\lambda x.\lambda y.\lambda f_{<e<s,t>>}.\lambda e.$ f(e,x) & theme (e,x) & to-the-possession(x,y)

b. LOW-APPL-FROM (SOURCE APPLICATIVE):
$\lambda x.\lambda y.\lambda f_{<e<s,t>>}.\lambda e.$ f(e,x) & theme (e,x) & from-the-possession(x,y)

High and low applicatives can look very similar; for example, both types of arguments are often realized as datives. But this chapter has shown evidence that this similarity is only superficial and that applicatives divide into two types that are different semantically, and consequently also syntactically.

Asymmetries in the *syntax* of applicatives have not gone unnoticed by previous researchers. In fact, applicatives exhibit many more asymmetries than those discussed here, and therefore, the high/low classification should only be seen as a basis for a comprehensive theory of applicatives, rather than as a finished proposal. McGinnis (2001) has, in fact, already extended the present approach to account for a host of applicative asymmetries not discussed here. In what follows I briefly review some of these other applicative asymmetries and show how earlier syntactic analyses have approached them.

This chapter started out by observing that some applicatives are possible from unergatives while others are not. This asymmetry has received much attention in the applicative literature, but it has not previously been correlated to semantic restrictions on the base predicate. Instead, previous researchers have discovered that in those applicatives that are possible from unergatives (our high), both the applied argument and the theme argument behave as true objects, whereas in applicatives that are impossible from unergatives (our low), only the applied argument has object properties. Consequently, the applicatives where both the theme and the applied argument show object properties have been called *symmetric applicatives*, while those applicatives where only the applied argument behaves as a true object have been called *asymmetric applicatives.* Object diagnostics that distinguish symmetric applicatives from

asymmetric applicatives include passivization and object agreement, among others. These are illustrated below for symmetric benefactives and asymmetric locatives in Kinyarwanda. In symmetric applicatives, either the applied object or the theme may become the subject in a passive, (131), but in asymmetric applicatives only the applied argument may do so, (132).

(131) SYMMETRIC PASSIVE: KINYARWANDA BENEFACTIVE

a. Umukoôbwa a-ra-andik-ir-w-a íbárúwa n'ûmuhuûngu.
girl SP-PRES-write-APPL-PASS-ASP letter by boy
'The girl is having the letter written for her by the boy' (Kimenyi, 1980: 6, 3c)

b. Íbárúwa i-ra-andik-ir-w-a umukoôbwa n'ûmuhuûngu.
letter SP-PRES-write-APPL-PASS-ASP girl by boy
'The letter is written for the girl by the boy' (Kimenyi, 1980: 6, 3b)

(132) ASYMMETRIC PASSIVE: KINYARWANDA LOCATIVE

a. Ishuûri ry-oohere-j-w-é-ho igitabo n'úúmwáalímu.
school SP-send-ASP-PASS-ASP-LOC book by teacher
'The school was sent the book by the teacher' (Kimenyi, 1980: 5.4, 19c)

b. *Igitabo cy-oohere-j-w-é-ho ishuûri n'úúmwáalímu.
book SP-send-ASP-PASS-ASP-LOC school by teacher
"The book was sent to school by the teacher." (Kimenyi, 1980: 5.4, 24)

Similarly, in symmetric applicatives, either the applied argument or the theme may be expressed as an object marker on the verb (133), while in asymmetric applicatives only the applied argument can be realized as an object marker, (134).

(133) SYMMETRIC OBJECT MARKING: KINYARWANDA BENEFACTIVE

a. Umugóre a-rá-mu-he-er-ai ímbwa ibíryo.
woman SP-PRES-OP-give-APPL-ASP dog food
'The woman is giving food to the dog for him' (Kimenyi, 1980: 4, 56c)

b. Umugóre a-rá-bi -he-er-a umugabo ímbwa.
woman SP-PRES-OP-give-APPL-ASP man dog
'The woman is giving it to the dog for the man' (Kimenyi, 1980: 4, 56a)

(134) ASYMMETRIC OBJECT MARKING: KINYARWANDA LOCATIVE

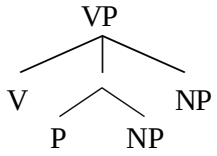
a. Úmwáalímu y-a-ry-oohere-jé-ho igitabo.
teacher SP-PAST-OP-send-ASP-LOC book
'The teacher sent the book to it' (Kimenyi, 1980: 5. 4, 20)

b. *Úmwáalímu y-a-cy-oohere-jé-ho ishuûri.
teacher SP-PAST-OP-send-ASP-LOC school
'The teacher sent it to school' (Kimenyi, 1980: 5.4, 25)

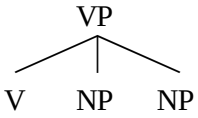
Previous explanations of these asymmetries have have relied on GB-notions such as Case, θ-theory and government (Baker, 1988a, b; Marantz, 1993). Baker (1988a, b), for example, proposes the structures in (135a, b) for asymmetric and symmetric applicatives, where the applied argument of asymmetric applicatives receives its θ-role from a P that incorporates into the V, while the applied argument of symmetric applicatives receives it θ-role directly from the verb.

(135) BAKER (1988)

a. Asymmetric applicative



b. Symmetric applicative



Baker assumes that verbs can assign both structural and inherent Case but that inherent Case can only be assigned to those arguments that the verb also θ-marks. Baker then derives various applicative asymmetries from the assumption that the applied argument of asymmetric applicatives is dependent on the verb's structural Case while the applied argument of symmetric applicatives is not; the applied argument of asymmetric applicatives is θ-marked by the verb and can therefore receive inherent case (this is essentially the analysis in Marantz (1984), as Baker acknowledges). This means that whenever the verb does not have structural case, as in passives, for example, an asymmetric applied argument must raise. Object-marking is taken to be a manifestation of structural Case, and, again, in asymmetric applicatives only the applied argument can be realized as an object marker. According to Baker, unergatives lack structural Case, and therefore asymmetric applicatives cannot be formed from unergatives.

Baker's theory does not address where the applied argument comes from in symmetric applicatives; it is simply assumed that in applicative constructions the verb is able to assign an additional θ-role. Further, the theory relies on problematic assumptions about Case. For example, for Baker it is crucial that unergatives cannot assign structural Case; this is why asymmetric applied arguments cannot combine with unergatives. This generalization, however, faces the challenge that unergatives *do* seem capable of assigning case, as long as their direct object is semantically licensed, as the examples below show (see Marantz, 1991, for related discussion):

(136) a. I ran a mile.
b. I laughed him out of the room.

Marantz (1993) assumes that a structure such as the one proposed here for high applicatives is the universal applicative structure and aims to capture applicative asymmetries by proposing that in asymmetric applicatives the verb combines with APPL via Incorporation while in symmetric applicative the verb raises and adjoins to APPL. Marantz hypothesizes that as a result of Incorporation, the theme argument loses its object properties, while adjunction, on the other hand, allows the theme to retain its object properties. Via a complex set of assumptions, Marantz derives applicative asymmetries in passivization and object-marking, but the theory offers no account of asymmetries in transitivity restrictions, for example.

As presented here, the high/low classification makes no predictions about asymmetries in domains such as passivization. However, recent research on applicatives and syntactic locality domains suggests that once we understand precisely what syntactic domains are relevant for phonological and semantic interpretation, additional applicative asymmetries may fall out naturally. In particular, McGinnis (2000, 2001a,b) argues that if the high/low applicative classification (as presented in Pylkkänen, 2001) is combined with a theory of "phases", i.e. cyclic domains for phonological and semantic interpretation, many applicative asymmetries that not accounted for here receive an explanation. As in Chomsky (1999, 2000), McGinnis assumes that *v*P (our VoiceP) and CP constitute phases. But in addition, she hypothesizes that high APPL also defines a phase, while low APPL does not. From this assumption, she derives a wide range of applicative asymmetries, including interesting asymmetries in the phonological phrasing of applicatives discovered by Seidl (2000). Thus, coupled with the syntactic structures argued for here, phase-driven theories of applicative asymmetries promise a fruitful and non-stipulative approach. See also Richards (2002) for additional current work on phase-driven explanations of applicative asymmetries relying on the high/low classification.

Chapter 3. Causatives

This chapter discusses causativization, an argument structure altering phenomenon that is present in the verbal systems of most, if not all, languages. As the data in (137-139) illustrate, the overwhelming cross-linguistic similarity in causative constructions is that a causativized verb involves an additional, "non-core", argument that is inteprerted as a causer of the event described by the verbal root.

(137) ENGLISH
a. *Noncausative:*
The window broke.
b. *Causative:*
Lisa broke the window

(138) JAPANESE
a. *Noncausative:*
Yasai-ga kusa-tta.
vegetable-NOM rot-PAST
'The vegetable rotted'
b. *Causative:*
Taroo-ga yasai-o kus-ase-ta.
Taro-NOM vegetable-ACC rot-CAUSE-PAST
'Taro caused the vegetable to rot'

(139) FINNISH
a. *Noncausative:*
Ikkuna hajo-si.
window.NOM broke-PAST
'The window broke'
b. *Causative:*
Liisa hajo-tti ikkuna-n.
Liisa.NOM break-CAUSE window-ACC
'Liisa broke the window'

Even though the syntactic and semantic effects of causativization seem similar across languages, causative constructions exhibit significant crosslinguistic variation as well. One well-known locus of variation has to do with the distribution of causativization. For example, in English, unergative and transitive verbs do not have causative counterparts, while in Japanese and Finnish they do.

(140) ENGLISH

a. Unergative root:
*John cried the baby.

b. Transitive root:
*John learned Mary Finnish.

(141) JAPANESE

a. Unergative root:
John-ga kodomo-o nak-asi-ta.
John-NOM child-ACC cry-CAUSE-PAST
'John made the child cry'

b. Transitive root:
John-ga Taroo-ni Eigo-o os-hie-ta.
John-NOM Taro-DAT English-ACC learn-CAUS-PAST
'John taught Taro English' (Lit: John made Taro learn English)

(142) FINNISH

a. Unergative root:
Jussi itke-tt-i las-ta.
Jussi cry-CAUSE-PAST child-PART
'Jussi made the the child cry'

b. Transitive root:
Taro ope-tt-i Jussi-lle japani-a.
Taro.NOM learn-CAUSE-PAST Jussi-ABL Japanese-PART
'Taro taught Jussi Japanese' (Lit: Taro made Jussi learn Japanese)

Another point of variation has to do with adverbial scope possibilities. As Fodor and Lepore (forthcoming) point out, adverbial scope is usually unambiguous in English causatives. Thus, in (143), the adverb *on purpose* can only modify the action of the causer, Smith, and not the action of the causee, the students (i.e. the participant that is affected by the action of the causer), no matter what the context. In contrast, adverbial scope in the Venda causative in (144) is ambiguous: here the adverb 'eagerly' can modify either the action of the causer, the salesman, or the action of the causee, Katonga.

(143) ENGLISH: ADVERBIAL SCOPE IS UNAMBIGUOUS

Smith sat the students on the floor on purpose.
(cf. *Smith caused the students to sit on the floor on purpose.*)

(Fodor and Lepore, forthcoming)

(144) VENDA: ADVERBIAL SCOPE IS AMBIGUOUS[16]

Muuhambadzi	o-reng-is-a	Katonga	moḓoro	nga dzangalelo
salesman	3SG.PAST-SC-buy-CAUSE-FV	Katonga	car	with enthusiasm

(i) 'The salesman, *eagerly, made* Katonga buy the car'
(ii) 'The salesman made Katonga *buy the car eagerly*'

The question then is, what is the right characterization of the similarity among causative constructions crosslinguistically, and what gives rise to the observed crosslinguistic differences? This chapter develops an explicit hypothesis about the syntax and semantics of causatives which posits one source of similarity and two sources of variation for causative constructions crosslinguistically. The proposal is outlined in §3.1. and explicitly argued for in the subsequent sections of this chapter.

3.1. Summary of the proposal

Since causative verbs universally seem to involve a causer argument that is absent from the syntax of their noncausative counterparts, it is natural to hypothesize that causative verbs are derived by the addition of a head which adds a Causer argument to the semantics of a verb (as in e.g. Doron 1999). One of the main claims of this chapter is that this empirical generalization is wrong and that, therefore, a head introducing a Causer argument cannot be what causative constructions cross-linguistically share. I will show that causativization does not always increase the number of the verb's syntactic arguments and that, therefore, introduction of a new syntactic argument is not a core property of causativization. Instead, I will argue that what universally distinguishes causative verbs from their noncausative counterparts is a syntactically implicit event argument ranging over *causing events*. Specifically, I will argue that all causative constructions involve the head CAUSE which combines with noncausative predicates and introduces a causing event to their semantics:

[16] These data were elicited in a truth value judgment task where the speaker was asked to judge the truth or falsity of the sentence in (120) in the following two contexts:

Context 1 (high adverbial scope is true, low is false): Katonga is car-shopping and talks to a salesman who is extremely eager to sell a particular car. The salesman praises the car endlessly and finally, even though Katonga feels like he is making a mistake, Katonga buys the car.

Context 2 (low adverbial scope is true, high is false): Katonga is car-shopping and talking to a salesman who seems bored with his job but keeps saying good things about a particular car. Katonga is very impressed by all the qualities that the salesman mentions and eagerly buys the car, even though the salesman seems to be implying that the car is not suitable for Katonga (the car only seats two people but Katonga has four children).

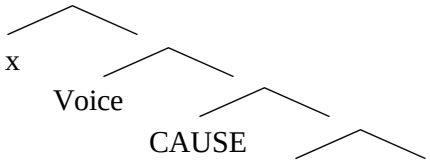
The sentence in (120) is judged true in both of these contexts, showing that adverbial scope is ambiguous.

(145) UNIVERSAL CAUSATIVE ELEMENT:
CAUSE: λP.λe.[(∃e') P(e') & CAUSE(e,e')]

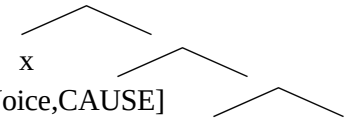
Crosslinguistic variation will be argued to have two sources: Voice-bundling and Selection. Voice-bundling refers to variation in the syntactic realization CAUSE: CAUSE can occur either as its own syntactic head or it can be "bundled" together with the external argument introducing Voice into a complex head. The latter option results in a causative head that effectively introduces an external argument even though CAUSE is semantically separate from Voice. This chapter argues that Finnish and Japanese have causative heads that are independent of Voice, while the English zero-causative is syntactically dependent on Voice, i.e., it is Voice-bundling.

(146) VARIATION: VOICE-BUNDLING

a. Non-Voice-bundling causative
(e.g. Japanese, Finnish)



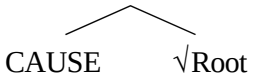
b. Voice-bundling causative
(e.g. English)



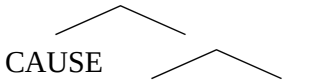
The size of the complement of CAUSE constitutes a second source of crosslinguistic variation. In this respect, causative heads are argued to divide into three different types: (i) to those that are able to combine with constituents containing an external argument, (ii) to those that select for VPs lacking an external argument and (iii) to those that select for something even smaller than a verb, namely a category-neutral root (Marantz, 1997). Marantz argues that verbs, nouns and adjectives all decompose into a category-neutral root and a category-defining functional head *v, n* or *a* (which can be thought of as derivational morphemes). The proposal here makes crucial use of such decomposition, and, if on the right track, provides a new empirical argument for it. The three-way classification yields the structures in (147). We will see evidence that causativization treats arguments of Voice and arguments of high APPL on a par; neither can be embedded under a verb-selecting causative head, (147b). The domain defined by any kind of external argument introducing head (i.e. Voice or high APPL) will be called a "phase", following McGinnis's (2000, 2001a,b). Consequently, the highest type of causative head will be called a "phase-selecting" causative, (147c).

(147) VARIATION: SELECTION

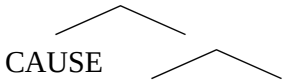
a. Root-selecting CAUSE



b. Verb-selecting CAUSE

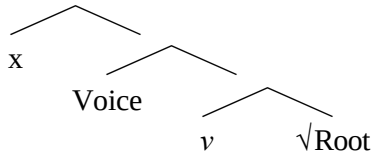


c. Phase-selecting CAUSE



The claim then is that the possible complements of CAUSE are directly given by an architecture of the verbal domain that combines Kratzer's assumption that external arguments are syntactically introduced by Voice (Kratzer, 1996) with Marantz's theory in which functional heads define the syntactic category of otherwise category-neutral roots (Marantz, 1997). To the extent that the present proposal is correct, it provides a strong argument for such a framework.

(148) THE KRATZER-MARANTZIAN VERBAL ARCHITECTURE



The Voice-bundling and Selection parameters together predict a significant amount of crosslinguistic variation in causative constructions. The predictions of the proposal will be discussed in detail in the sections to follow, but so that the reader can anticipate the results of this chapter, the table below summarizes the core predictions and indicates which languages will be shown to support the existence of which causative type. As this table shows, the proposal predicts two novel correlations: (i) a correlation between the types of morphology that can intervene between a root and CAUSE and the types of adverbs that can take scope under CAUSE and (ii) for root-selecting causatives, a correlation between the possibility of having unaccusative causatives and the possibility of causativizing unergatives and transitives.

	Voice-bundling	Non-Voice-bundling
Root-selecting	(i) unaccusative causatives impossible (ii) impossible to causativize unergatives or transitives (iii) no category-defining morphology can intervene between root and CAUSE (iv) adverbial modification below CAUSE must be root-modification *Example: English zero-causative*	(i) unaccusative causatives possible (ii) possible to causativize unergatives or transitives (iii) no category-defining morphology can intervene between root and CAUSE (iv) adverbial modification below CAUSE must be root-modification *Example: Japanese lexical causative*
Verb-selecting (Example: Bemba *eshya*-causative)	(i) unaccusative causatives impossible (ii) possible to causativize unergatives or transitives (iii) verbal morphology that is not external argument introducing can intervene between root and CAUSE (iv) adverbial modification below CAUSE is possible except agent-oriented	(i) unaccusative causatives possible (ii) possible to causativize unergatives or transitives (iii) verbal morphology that is not external argument introducing can intervene between root and CAUSE (iv) adverbial modification below CAUSE is possible except agent-oriented *Example: Finnish -tta causative*
Phase-selecting (Example: Luganda and Venda causative)	(i) unaccusative causatives impossible (ii) possible to causativize unergatives or transitives (iii) all types of verbal morphology can intervene between root and CAUSE (iv) all types of adverbial modification below CAUSE are possible	(i) unaccusative causatives possible (ii) possible to causativize unergatives or transitives (iii) all types of verbal morphology can intervene between root and CAUSE (iv) all types of adverbial modification below CAUSE are possible

TABLE 8: A causative typology predicted by the Selection and Voice-bundling parameters.[17]

Section 3.2. is devoted to arguing against the view that CAUSE introduces an external argument and in favor of a view where CAUSE only introduces a causing event. Section 3.3. parameterizes the syntactic realization of CAUSE by introducing the option for Voice-bundling. Section 3.4. investigates the selectional properties of CAUSE and argues for the three-way classification shown in (123). Finally, section 3.5 shows how the combination of the Voice-bundling and Selection parameters accounts for important distributional differences in causative constructions.

3.2. Similarity: CAUSE is not a θ-role

In order to articulate a theory about the syntax and semantics of causatives, we must have a hypothesis about what kinds of elements the relation CAUSE relates to each other in natural langauge. This section compares two proposals about the semantics of causative heads. One follows traditional analyses in philosophy and holds that the linguistic relation CAUSE is a relation between two events (Parsons, 1990).

[17] The Voice-bundling properties of the Bemba, Luganda and Venda causatives are not known and therefore they cannot be fully classified.

An opposing view denies the existence of two event arguments in causative constructions and relates the external argument to the caused event via a Causer theta role (e.g. Doron, 1999). We will see that the bieventive analysis can form a basis for a unified theory of causativization across languages while the theta-role analysis cannot.

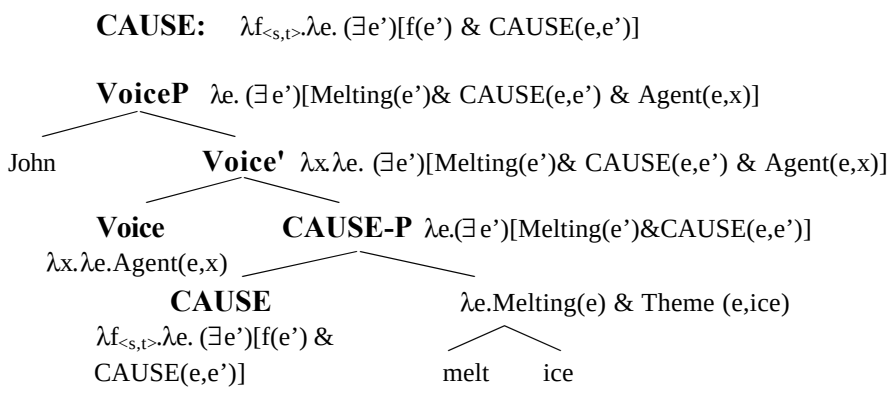
3.2.1. Predictions of the bieventive and θ-role analyses

If CAUSE is a relation between two events, the meaning of a causative sentence such as the one in (a) below is roughly as in (b):

(149) a. John melted the ice.
b. *John was an agent of some event that caused a melting of the ice.*

Here the causative sentence has two relations that the corresponding noncausative does not have: a causation relation relating the causing event to the caused event and a thematic relation between the causing event and the individual expressed as the external argument. If we combine this with the assumption that external arguments are introduced by Voice (Kratzer 1996), we get a syntactic tree where the predicate CAUSE first merges with the VP describing the caused event and where Voice then relates an agent to the event introduced by CAUSE:

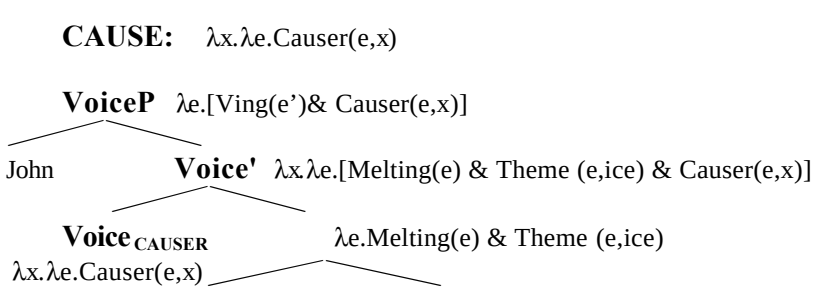
(150) BIEVENTIVE ANALYSIS



In the theta-role analysis, on the other hand, the causative sentence has only one relation that the corresponding non-causative sentence does not have: the Causer theta-role. Thus the structure of a causative verb is no different from the structure of a noncausative transitive verb (such as *build*):

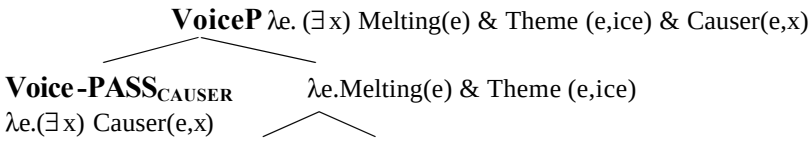
(151) a. John melted the ice.
b. *John was the causer of a melting of the ice.*

(152) THETA-ROLE ANALYSIS



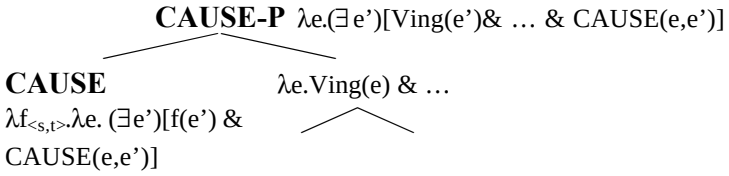
The bieventive and theta-role views make different predictions about the possibility of having causative constructions that lack an external argument. The theta-role view clearly predicts that causatives without an external argument are impossible; to introduce a causative meaning is to introduce an external argument. The external argument does not necessarily have to be syntactically expressed, i.e. we can have a passive structure as shown below, but even then an implicit external argument should be diagnosable in the usual ways (e.g. by a purpose-phrase).

(153) THETA-ROLE ANALYSIS: PASSIVE CAUSATIVE



The bieventive analysis, on the other hand, does allow for the existence of causatives without an external argument. Since CAUSE is separate from Voice, the structure below should be possible.

(154) BIEVENTIVE ANALYSIS: UNACCUSATIVE CAUSATIVE



The existence of unaccusative causatives implying a causing event but no external argument would then clearly support the bieventive analysis over the theta-role view. The following two sections show that such structures exist, at least in Japanese and in Finnish.

3.2.2. Japanese adversity causatives

Traditionally, Japanese causatives have been divided into at least two classes: lexical and productive ones. Even though many lexical causatives are spelled out with the same morphology as productive causatives, i.e. with the suffix *–sase*, the two differ in many of their properties. The construction I wish to discuss in this section is one of the diagnostics for the lexical/productive distinction: in addition to a regular causative interpretation, lexical causatives, but not productive causatives, are associated with a so-called *adversity interpretation* (e.g. Oehrle and Nishio, 1981; Miyagawa, 1989; Harley, 1996), which are is similar to the interpretations of the gapped adversity passives discussed in § 2.3. In other words, in the adversity interpretation, the nominative argument is not interpreted as a causer but rather as an affected argument of the event described by the noncausative verb. Thus the lexical causative in the example below is ambiguous between the interpretations in (i) and (ii).

(155) Taroo-ga musuko-o sin-ase-ta.
Taro-NOM son-ACC die-CAUSE-PAST
(i) 'Taro caused his son to die'
(ii) 'Taro's son died on him' (the adversity causative)

The adversity causative is puzzling because it displays causative morphology but does not have an obviously causative meaning. However, this section shows that the construction does, in fact, have a causative meaning and that its causative meaning is exactly of the kind predicted to exist by the bieventive analysis of causatives and not by the theta-role view. In other words, the adversity causative asserts the existence of a causing event without relating any participant to it. To show this, I will first demonstrate that the nominative argument of the adversity causative is not an external argument. Then, I will give evidence for the existence of a causing event in the meaning of the structure. And finally, I will show that the adversity causative does not have an implicit external argument, i.e. that it is not a passive.

The generalization that sentences with derived subjects do not passivize (Perlmutter and Postal, 1984) will be used as a diagnostic for external argumenthood. If the nominative, affected argument in the adversity causative was an external argument, we would expect to be able to passivize the adversity causative and get a meaning where there is an implicit affected argument. In contrast, if the nominative argument of the adversity causative is a derived subject, passivization should make the adversity reading dissappear. The latter prediction is born out and thus there is evidence that the nominative argument is not an external argument but, rather, a derived subject.

(156) Musuko-ga sin-ase-rare-ta.
son-NOM die-CAUSE-PASS-PAST
(i) 'The son was caused to die'
(ii) *'Somebody's son died on them' (implicit affected argument)

Even though the adversity causative lacks an external argument, it has a causative meaning. The clearest way to demonstrate this is by contrasting it with the adversity passive, which has a similar meaning but lacks the causative morphology.

(157) a. ADVERSITY PASSIVE
Taroo-ga musuko-ni sin-are-ta.
Taroo-NOM son-DAT die-PASS-PAST
'Taro's son died on him'

b. ADVERSITY CAUSATIVE
Taroo-ga musuko-ni sin-are-ta.
Taroo-NOM son-DAT die-PASS-PAST
'Taro's son died on him'

The meaning of the adversity passive seems similar to that of the adversity causative but its morphological spell-out is different. In what follows, I show that this semantic similarity is superficial only and that the adversity causative is, in fact, causative in meaning while the adversity passive is not.

The clearest indication of the semantic difference is the fact that the adversity causative combines with a *ni-yotte* by-phrase naming a causing event while the adversity passive does not:

(158) a. ADVERSITY CAUSATIVE + BY-PHRASE NAMING A CAUSING EVENT
Taroo-ga sensoo-ni-yotte musuko-o sin-ase-ta
Taroo-NOM war-BY son-ACC die-CAUSE-PAST
'Taro's son was caused to die on him by the war'

b. ADVERSITY PASSIVE + BY-PHRASE NAMING A CAUSING EVENT
*Taroo-ga sensoo-ni-yotte musuko-ni sin-are-ta
Taroo-NOM war-BY son-DAT die-PASS-PAST
'Taro's son died on him by the war'

A *ni-yotte* by-phrase is a modifier that can be used to specify an implicit argument, as is shown by the passive in (a) below. If a structure does not have an implicit argument, as unaccusatives do not, a *ni-yotte*-phrase is impossible, (b-c):

(159) a. PASSIVE: IMPLICIT EXTERNAL ARGUMENT
Nikki-ga Hanako-ni-yotte yom-are-ta.
diary-NOM Hanako-BY read-PASS-PAST
'The diary was read by Hanako'

b. UNACCUSATIVE: NO IMPLICIT EXTERNAL ARGUMENT
*Yasai-ga Hanako-ni-yotte kusa-tta.
Vegetable-NOM Hanako-BY rot-PAST
'*The vegetable rotted by Hanako'

c. UNACCUSATIVE: NO IMPLICIT CAUSING EVENT
*Yasai-ga kouon-ni-yotte kusa-tta.
Vegetable-NOM high.temperature-BY rot-PAST
'*The vegetable rotted by the heat'

Importantly for my present purposes, a *ni-yotte* phrase can also modify event arguments, as is shown in the example below. In this way it is similar to the English by-phrase, as indicated by the translation:[18]

(160) Taroo-wa kawa-wo oyogu koto ni-yotte mukougisi-ni watatta.
Taro-TOP river-ACC swim C BY the-other-side-DAT got
'Taro got to the other side by swimming across the river'

Thus there is evidence that the adversity causative has an implicit event argument which the adversity passive lacks. What remains to be shown is that this implicit argument is not an external argument. If it were an external argument, we would expect the by-phrase in (158a) to be able to specify not only the causing event, but also a participant of that event. However, if we replace the by-phrase in (158a) with one that specifies an agent rather than the causing event itself, the example becomes ungrammatical:

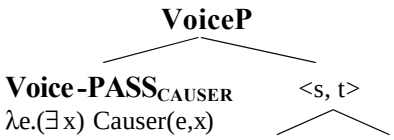
(161) ADVERSITY CAUSATIVE + BY-PHRASE NAMING AN AGENT
*Taroo-ga Hanako-ni-yotte musuko-o sin-ase-ta
Taroo-NOM Hanako-BY son-ACC die-CAUSE-PAST
'Taro's son was caused to die on him by Hanako'

The contrast between (158a) and (161) can only be accounted for under the bieventive analysis: the adversity causative involves a causative head introducing a causing event but no external argument. Since there is no Voice-head relating a participant to the causing event, a *ni-yotte* phrase cannot specify an implicit event participant. This situation is impossible under the theta-role analysis: it cannot limit the interpretations of an implicit cause to events only. Under the theta-role view, the adversity causative would need to involve a passive causative head, such as the one shown in (162). This is the only way in which the theta-role view could yield causative semantics without introducing an external argument into

[18] Thanks to J. Higginbotham for pointing out the relevance of this type of data to me and to K. Hiraiwa for this example. It should be noted though, that the Japanese *ni-yotte* phrase is more limited in its ability to modify event arguments than the English by-phrase. For example, while (146) is perfectly natural, a sentence such as *I went there by walking* cannot be expressed with a *ni-yotte* phrase. What is relevant here, is that a *ni-yotte* phrase *can* modify an event argument even if at present we do not understand all its restrictions.

the syntax. Thus the adversity passives should be like passive causatives, since, presumably this same head would be involved in passivized causatives. However, the adversity causative is not like a passivized causative. In a passivized causative, a by-phrase can name either an agent, (163a), or a causing event (163b). In contrast, as shown in above, a by-phrase naming an agent is ungrammatical with the adversity causative.

(162) THETA-ROLE ANALYSIS: PASSIVE CAUSATIVE



(163) a. PASSIVIZED CAUSATIVE + BY-PHRASE NAMING AN AGENT
Musuko-ga Hanako-ni-yotte sin-ase-rare-ta
son-NOM Hanako-BY die-CAUSE-PASS-PAST
'The son was caused to die by Hanako'

b. PASSIVIZED CAUSATIVE + BY-PHRASE NAMING A CAUSING EVENT
Musuko-ga sensoo-ni-yotte sin-ase-rare-ta
son-NOM war-BY die-CAUSE-PASS-PAST
'The son was caused to die by the war'

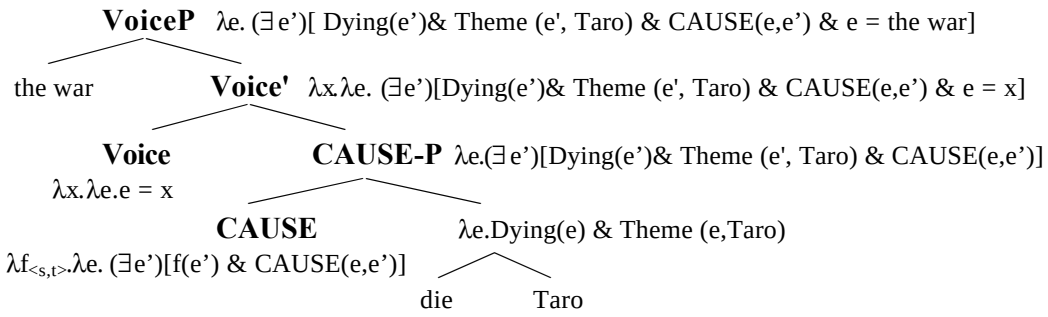
What still remains a question, though, is how the bi-eventive analysis would handle cases such as (163b), or their active counterparts, (164), for that matter, where the external argument clearly does not name a participant of the causing event, but rather names the causing event itself.[19]

(164) THE EXTERNAL ARGUMENT NAMES A CAUSING *EVENT*
Sensoo-ga Taro-o sin-ase-ta
war-NOM Taro-ACC die-CAUSE- PAST
'The war caused Taro to die'

[19] Thanks to Sabine Iatridou for stressing the importance of these type of data for the present analysis.

I will here assume that cases where the external argument names the causing event involve a Voice head denoting an identity relation instead of a more traditional thematic relation. I will hypothesize that this type of external argument relation is possible in cases where the verb itself provides no description of the nature of the event it introduces. In other words, the fact that CAUSE only introduces a variable for the causing event, but no description as to what kind of an event this is, is what allows us to use a description of the causing event as the external argument. Further consequences of this hypothesis will be left for future investigation.

(165) THE EXTERNAL ARGUMENT NAMES A CAUSING *EVENT*



In addition to the possibility of naming the causing event of adverwsity causatives, their causativity can be revealed in other ways as well. For example, in a situation where there is no obvious cause, such as one where Taro's old father passes away, only the adversity passive, and not the adversity causative is natural:

(166) a. ADVERSITY PASSIVE:
Taroo-ga titioya-ni sin-are-ta.
Taro-NOM father-DAT die-PASS-PAST
'Taro was affected by his father dying'
Context: Taro's father dies of natural causes.

b. ADVERSITY CAUSATIVE:
#Taroo-ga titioya-o sin-ase-ta.
Taro-NOM father-ACC die-CAUSE-PAST
'Taro was affected by his father dying'
Context: Taro's father dies of natural causes.

Further, if we combine these constructions with a phrase such as *katteni*, 'by itself/on one's own', the adversity passive is grammatical, and thus patterns with unaccusatives, while the adversity causative is contradictory. If *katteni* has essentially the semantics of 'without a cause', and if the adversity causative asserts the existence of a causing event, the contrast between the adversity causative in (167a) and the adversity passive and the unaccusative in (167b-c) is predicted.

(167) a. ADVERSITY CAUSATIVE + 'BY ITSELF':
??Taroo-ga musuko-o katteni korob-ase-ta
Taro-NOM son-ACC by.self fall.down-CAUSE-PAST
'Something caused Taro's son to fall down on him all by himself'

b. ADVERSITY PASSIVE + 'BY ITSELF':
Taroo-ga musuko-ni katteni korob-are-ta
Taro-NOM son-DAT by.self fall.down-PASS-PAST
'Taro's son fell down on him all by himself'

c. UNACCUSATIVE + 'BY ITSELF':
Taroo-ga katteni koronda.
Taro-NOM by.self fell.down
'Taro fell down all by himself'

Thus Japanese proves the existence of the type of unaccusative causative structure predicted by a theory where the causative relation is syntactically separate from the external argument relation. In the next section I show that the properties of desiderative causatives in Finnish also require a separation of causation from the external theta-role.

3.2.3. Finnish desiderative constructions

In Finnish it is possible to causativize an unergative verb without introducing a new argument in the syntax. The result is a causative construction with a pre-verbal partitive argument and a desiderative meaning. The translations in the examples below reflect the way a native speaker would be likely to translate the constructions into English.

(168) a. Maija-a laula-tta-a.
Maija-PART sing-CAUSE-3SG
'Maija feels like singing'

b. Maija-a naura-tta-a.
Maija-PART laugh-CAUSE-3SG
'Maija feels like laughing'

The desiderative causative is similar to the adversity causative in that it is realized with causative morphology even though it does not have an obviously causative meaning.[20] However, in what follows I show that the relationship between the morphology we see and the meaning we get in (168) is, in fact, transparent. The desiderative causative is causative in meaning in exactly the same way that the Japanese adversity causative is: it involves a causative head without a Voice head. To show this I will make a parallel argument to the one made in the previous section. First, I show that the preverbal partitive argument is not an external argument. Then, I provide evidence for the causativity of the desiderative causative and finally show that the construction does not involve an implicit external argument.

The clearest indication of the fact that the partitive argument is not an external argument but a derived subject is its partitive case. In Finnish object case is partitive, rather than accusative, when the event described by the verb is atelic (for discussion, see e.g. Kiparsky 1997). Aspectual tests reveal that the desiderative causative is atelic, in fact, stative. The best evidence for its stativity comes from its present tense interpretation. As in English, only stative verbs in Finnish have a non-habitual interpretation in the present tense, as is illustrated in (169a-b). (169c) shows that in this respect the desiderative causative clearly patterns with statives: it has a "true" present tense interpretation in the present tense, i.e. it is not necessarily interpreted habitually.

(169) a. EVENTIVE:
Maija aja-a avoauto-a.
Maija.NOM drive-3SG convertible-PART
'Maija drives a convertible (habitually)'

b. STATIVE:
Jussi osa-a ranska-a.
Jussi-NOM know-3SG French-PART
'Jussi knows French (at present)'

c. DESIDERATIVE:
Maija-a laula-tta-a.
Maija-PART sing-CAUSE-3SG
'Maija feels like singing (at present)'

Given that the desiderative causative is stative, partitive case on the preverbal argument is expected if it is an underlying object. This is because partitive object case is always retained by a derived subject as shown by the passive of a stative verb in (170) (AGR stands for impersonal agreement):

[20] Another puzzle about the desiderative causative is, of course, the source of its desiderative meaning. However, similar constructions with overt desiderative morphology exist in other languages, such as Tohonno O'Odham (see Zepeda, 1987), and therefore we can make the plausible assumption that in the Finnish construction the same desiderative morphology is present although unpronounced.

(170) Pekka-a rakaste-ta-an.
Pekka-PART love-PASS-AGR
'Pekka is loved'

The partitive argument thus exhibits the properties of a derived subject of a stative verb. It is, however, worth mentioning that in Finnish external arguments can also appear in the partitive case. Importantly, though, this is only possible with plural and mass nouns: a singular external argument in the partitive is ungrammatical, as (171c) shows.

(171) a. MASS:
Karja-a juoksi kedo-lla.
cattle-PART ran field-ADE
'Cattle were running in the field'

b. PLURAL:
Miehi-ä lauloi kato-lla.
men-PART sang roof-ADE
'Some men were singing on the roof'

c. SINGULAR:
*Miestä lauloi kato-lla
man-PART sang roof-ADE
'A (part of a) man was singing on the roof'

Since with the desiderative causative, partitive case is grammatical also in the singular, we know that the partitive argument is not the external argument. Partitive case is also not in general a possible Experiencer subject case. This is exemplified by the data in (172) for the Experiencer subject verb 'like'. In the grammatical example in (172a) 'like' takes an elative object and a nominative external argument, interpreted as the experiencer. That the nominative argument is an external argument is evidenced by the possibility of passivization. If, however, the experiencer occurs in the partitive, as in (172c), the sentence is ungrammatical. Thus the partitive Experiencer argument of the desiderative causative does not have the canonical properties of Experiencer subjects in Finnish.

(172) a. Minä pidän sinu-sta.
I.NOM like you-ELA
'I like you'

b. Sinu-sta pidetään
you-ELA like-PASS-AGR
'You are liked'

c. *Minu-a pidän sinu-sta.
I-PAR like you-ELA
'I like you'

Despite the lack of an external argument, the desiderative causative is causative in meaning. In other words, we can show that it is semantically distinct from a construction that simply asserts the existence of a desire, such as (173):

(173) Halua-isi-n naura-a.
want-COND-1SG laugh-INF
'I would like to laugh'

The evidence for the causativity of the desiderative causative comes from the fact that the causing event introduced by its causative morpheme can be questioned, (174a). This, naturally, is not possible with the purely desiderative construction, (174b):

(174) a. Minu-a naura-tta-a mutt-en tiedä mikä.
I-PART laugh-CAUSE-3SG but-not.1SG know what.NOM
'Something makes me feel like laughing but I don't know what (makes me feel like laugh)'

b. *Halua-isi-n nauraa mutt-en tiedä mikä.
want-COND-1SG laugh but-not.1SG know what.NOM
'I would like to laugh but I don't know what (makes me want to laugh)'

This indicates that the desiderative causative has some implicit argument that the sluicing construction in (174b) can pick up and that is absent in the purely desiderative sentence. But as with the Japanese, we must make sure that this implicit argument is not an external argument. Indeed, if we change the *wh* word of the construction in (174a) to *kuka* 'who', which would question an event participant rather than an event, the construction becomes ungrammatical:

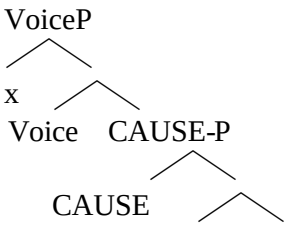
(175) *Minu-a naura-tta-a mutt-en tiedä kuka.
I-PAR laugh-CAUSE-3SG but-not.1SG know who.NOM
'Something makes me feel like laughing but I don't know who (makes me feel like laughing)'

Thus the Finnish desiderative causative has the same restriction as the Japanese adversity causative: its implicit argument must be interpreted as an event. This means that it also requires the separation of causation from the external thematic relation.[21] In other words, in Finnish, as in Japanese, the functional elements CAUSE and Voice are independent of each other and therefore both of the structures in (176)

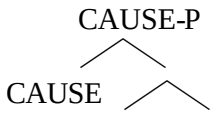
[21] See Baker and Stewart (1999) for recent work that also arrives at the conclusion that CAUSE and the external argument introducing head must be separate.

are possible. (176a) exemplifies a causative with an external argument and (162b) a causative without one.

(176) a. CAUSATIVE WITH AN EXTERNAL ARGUMENT



b. UNACCUSATIVE CAUSATIVE



Since there are languages that force us to separate CAUSE from Voice, the strongest theory would maintain this separation universally, so that CAUSE would never introduce an external argument:

(177) **CAUSE**: $\lambda f_{<s,t>}.\lambda e.[(\exists e')\ f(e') \ \&\ CAUSE(e,e')]$

However, since English, for example, does not seem to have unaccusative causatives, the possibility for the structure in (176b) may not be universal. In the following section I propose a way to parameterize the relationship of CAUSE and Voice while maintaining the semantics in (177).

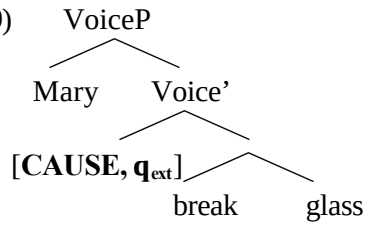
3.3. Variation: CAUSE and Voice-bundling

In the domain of inflectional heads much crosslinguistic variation has been explained by positing that in some languages TP and AgrSP have separate functional projections while in others T and AgrS are realized in one "unsplit" functional head (Iatridou, 1990; Speas, 1991; Ouhalla, 1991; Bobaljik, 1995; Thráinsson, 1996; Bobaljik and Thráinsson, 1998). My aim in this section is to extend this type of explanation into the verbal domain. Specifically, I would like to propose that while CAUSE and Voice are separate pieces in the universal inventory of functional heads, they can be grouped together into a morpheme in the lexicon of a particular language. In such a language, Voice and CAUSE form a similar feature bundle as tense and agreement in languages which do not have a split INFL. Thus, in the English causative head, for example, the causative relation and the external theta-role are "packaged" into one morpheme, and, consequently into one syntactic head. In other words, the English CAUSE is "Voice-bundling":

(178) VOICE-BUNDLING **CAUSE** (E.G. ENGLISH):
[**CAUSE**, **Voice**], where
CAUSE: $\lambda f_{<s,t>}.\lambda e.[(\exists e')\ f(e') \ \&\ CAUSE(e,e')]$ and
Voice: $\lambda x.\lambda e.\ \theta_{EXT}(e,x)$

While the Voice-bundling hypothesis has predecessors in the split vs. unsplit INFL literature, it is novel in that it groups two *interpretable* features into one syntactic head. This raises the question of how to interpret the structure bundling gives us, i.e. (179).

(179)



It is clear that the meaning of the Voice' node should be the same as the two-headed version of (160) would yield; i.e., we want the causative meaning to apply first so that the external argument can then be related to the *causing*, rather than the caused, event. However, CAUSE and Voice cannot combine with each other by Functional Application or by Event Identification to produce a meaning that would introduce both a causing event and an external argument. This is because both CAUSE and Voice need to combine with a function from events to truth-values and neither of them is of that type. Hence CAUSE and Voice are a unit syntactically only: they cannot combine with each other semantically.

Given this, CAUSE and Voice must apply to their complement one at a time. I will assume that this is done in whatever order is possible. In the case at hand, only one order is possible, i.e. CAUSE must apply before Voice. The other order would result in a type mismatch since CAUSE could not combine with a constituent that has an unsaturated e-type argument, i.e. the external argument. Thus I will assume that the interpretation of (179) proceeds as in (180), where the contents of the semantically complex Voice-head are interpreted in two steps:[22]

[22] The same result could of course be achieved by combining CAUSE and Voice with each other by Function Composition. At this point I do not have any evidence to distinguish between these two alternatives.

(180) **VoiceP** λe.[Agent(e,M)&(∃e')Breaking(e')&Th(e',gl) & CAUSE(e,e')]

Mary

STEP2 (Voice(CAUSE break glass)): λx.λe.[Agent(e,x)& (∃e') Breaking(e')&Th(e',gl)& CAUSE(e,e')]

STEP1 (CAUSE(break glass)): λe.[(∃e')Breaking (e') & Th(e',glass) & CAUSE(e,e')]

[CAUSE, Voice] λe.[Breaking(e) & Th(e,glass)]

break glass

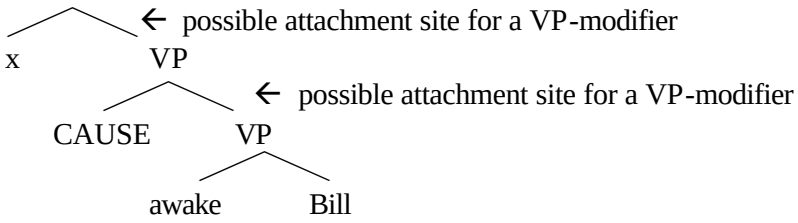
The core of the proposal then is that the English zero-causative differs from the Finnish and Japanese causatives only structurally, not semantically. The different structural realizations of the functional element CAUSE predict that unaccusative causatives should be possible in Japanese and Finnish but not in English. But the Voice-bundling parameter of course only addresses a small amount of crosslinguistic variation in causative constructions. For example, it does not speak to the distributional and adverbial modification differences mentioned in the introduction to this chapter. In following section, I argue that the size of the complement of CAUSE is another way in which causative constructions differ, and that this parameter, together with Voice-bundling, is what gives us a comprehensive typology of causativization crosslinguistically.

3.4. Variation: CAUSE selects for Roots, Verbs or Phases

Research on causativization has been heavily focussed on the question of whether causatives such as those in English are built in the syntax or in the lexicon. One of the arguments that has continually been advanced in favor of a lexicalist position is that English-type causatives fail to exhibit modifier scope-ambiguities of the sort that a syntactic decomposition account would predict (Fodor, 1970; Fodor and Lepore, forthcoming). Thus the manner adverb in (181b) unambiguously modifies John's action and not Bill's awakening. This, however, is unpredicted if the causative involves a structure where the causative head takes a noncausative verb as its syntactic argument (181b). In such a structure, a VP modifier should be able to attach at two sites, either at the lower or at the higher VP, (182).

(181) a. Bill awoke grumpily.
b. John awoke Bill grumpily. (false if John wasn't grumpy)

(182) A SYNTACTIC ANALYSIS PREDICTING TWO POSSIBLE ADVERBIAL SCOPES



Given data such as these, Fodor (1970) and Fodor and Lepore (forthcoming) argue that English causatives do not syntactically decompose and that the reason why scope is unambiguous in cases such as (181b) is that "scope respects the surface lexicon" (Fodor and Lepore, forthcoming, p. 1). However, this statement ignores a well-known set of cases where adverbial scope in English does *not* respect the "surface lexicon". The examples in (183) illustrate these data; here the degree adverbs are clearly able to modify the resultant states of the causatives, rather than the agent's action. If English causatives only allow adverbs to modify the causative verb as a whole, it is unclear how the data in (183) are interpreted.

(183) a. John closed the door partway.
b. John partly closed the door.
c. Roger half filled the glass.
d. Roger filled the glass halfway.
e. Nicolas mostly filled the glass. (Tenny 1999, 304:37)

Thus adverbial modification facts in English constitute a problem for both syntactic and lexicalist approaches. Syntactic accounts predict too many scope-ambiguities and lexicalist accounts too few (in fact, none). In other words, something more fine-grained is needed. In what follows I develop a new syntactic theory of causativization which relies on a more articulated VP-structure and, consequently, predicts more distinctions than the traditional syntactic or lexicalist approaches.

3.4.1. Classification and predictions

As the discussion above has established, the right syntactic theory of English-type causatives cannot look anything like (184), where the causative verb is derived by adding CAUSE to the noncausative form of that verb. Such theories predict that any VP-modifier that can modify the noncausative verb when it is not embedded under CAUSE should also be able to modify it when it is embedded under CAUSE. But this simply isn't true.

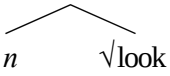
(184)

(185) a. He awoke grumpily.
b. John awoke him grumpily. (false if John wasn't grumpy)

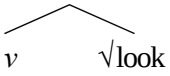
But in frameworks where the smallest units entering the syntax are entities such as nouns and verbs, it is difficult to conceive of a syntactic analysis of causatives that is not some version of (184). Therefore, this section develops a hypothesis about causativization that follows recent proposals about the morphology-syntax interface where entities such as nouns and verbs are *not* syntactic primitives (Marantz, 1997; Borer, 1991/1993, 2000; see also Pesetsky, 2002), but rather derive from functional structure in the syntax. Specifically, I will assume that what enters the syntax are category-neutral roots and category-defining functional heads, *v* (deriving verbs), *n* (deriving nouns), *a* (deriving adjectives) and so forth (Marantz, 1997). Thus, for example, the noun *look* and the verb *look* are treated as involving the same root but different functional heads, (186) (here the symbol '√' stands for roots, following the tradition started by Pesetsky, 1994). In English, the functional heads *v* and *n* are in this case phonologically indistinguishable (i.e. both are null), but it is easy to find langauges where this is not so. The (c) and (d) examples illustrate the same data for Finnish, where the final vowel depends on the syntactic category of the item:

(186) ENGLISH

a. *look* (n.)

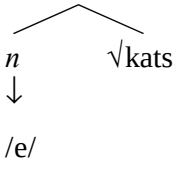


b. *look* (v.)

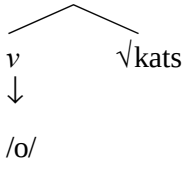


FINNISH

a. *katse* 'look' (n.)

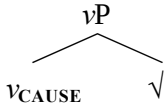


b. *katso* 'look' (v.)



In this type of a framework it becomes possible to hypothesize that there are causatives which are syntactically derived but do not involve two VPs. In other words, the functional element CAUSE could take a category-neutral root as its argument directly:

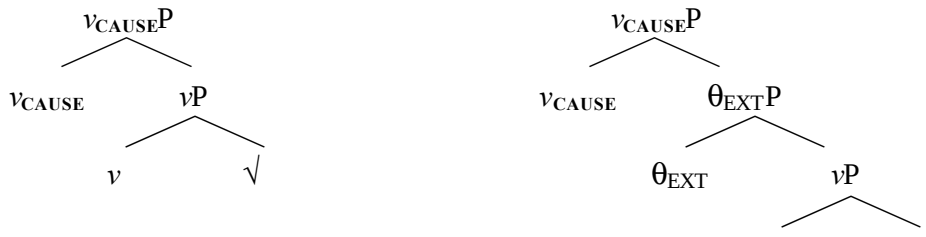
(187) ROOT-SELECTING CAUSATIVE



In this structure the causative head is a *v* ("little v"), i.e. it bears verbal category and therefore derives a verb from the category-neutral root. (187) is a syntactic *structure* but nevertheless just one verb, which captures the lexicalist intuition about "lexical" causatives exactly. Because (187) is just one verb, there is just one place to attach a verbal modifier, i.e. after the root has been turned into a verb. But by then, the constituent is already a causative, and the modifier will only be able to modify the causing event. Therefore, only one possible scope is predicted for VP-modifiers. On the other hand, it is not inconceivable that some modifiers might be able to modify roots directly and would, consequently, be able to appear in various categorial environments. This type of modifier would of course be predicted to be able to take scope under the causative head in root-selecting causatives. Section 3.4.2.2. shows evidence that those English modifiers that can scope under CAUSE are indeed possible root-modifiers.

In this type of a framework, verbal modifiers should only exhibit scope ambiguities if the causative head embeds a constituent that is at least a verb, i.e. *v*P, (188a). The structure of such a *verb-selecting causative* would involve two *v*Ps, and consequently, two attachment sites for verbal modifiers. However, if we assume that agents are introduced by Voice, and that Voice is not just another *v* but rather bears a special status, then verb-selecting causatives should only exhibit scope ambiguities for verbal modifiers that are not agent-oriented. In the subsequent sections I will show evidence that this is indeed correct, and that in addition to verb-selecting causatives, there is yet a higher type of a causative, i.e. a causative that *is* able to embed an external argument and that does exhibit scopal ambiguities for agent-oriented modifiers. Interestingly, this type of a causative treats arguments of Voice and arguments of high APPL as a natural class. Given this grouping, I will call this highest type of a causative a *phase-selecting causative*, borrowing McGinnis's (2000, 2001a, 2001b) terminology for the boundary that any *v*P-external argument-introducing head defines.

(188) a. VERB-SELECTING CAUSATIVE b. PHASE-SELECTING CAUSATIVE



As regards adverbial modification, causatives are then predicted to fall into three types: to those which exhibit no scope ambiguities for verbal modifiers (root-selecting), to those that exhibit scopal ambiguities for non-agent-oriented verbal modifiers (verb-selecting), and to those which have no restrictions as regards adverbial modification (phase-selecting). Since the modification facts follow from

the ability of CAUSE to embed various types of verbal heads, these facts should tightly correlate with the types of morphology that can occur between the CAUSE and the root.

With root-selecting causatives, all verbalizing morphology should be impossible between the causative morpheme and the root. Any such morphology would verbalize the root and form a constituent that a root-selecting causative head would not be able to combine with.

Verb-selecting causatives, on the other hand, should allow verbal morphology between CAUSE and the root; in fact, they should require it since the root must be verbalized before the causative head can take it as an argument. By hypothesis, this verbalizing morphology should not, however, be able introduce external arguments, i.e. arguments of Voice or arguments of high APPL. Low applicatives, on the other hand, should have no problem occurring inside a verb-selecting causative.

Finally, phase-selecting causatives should not exhibit any restrictions as regards the type of verbal morphology they allow between the root and CAUSE; all verbal heads should be possible, including high applicatives.

Table 9 summarizes the predictions of the classification outlined here. Properties (i) and (ii) are predicted to correlate, as well as properties (iii) and (iv).

	Root-selecting	Verb-selecting	Phase-selecting
(i) VP-modification of caused event possible?	NO	YES	YES
(ii) Verbal morphology between root and CAUSE possible?	NO	YES	YES
(iii) Agent-oriented modification of caused event possible?	NO	NO	YES
(iv) High applicative morphology between root and CAUSE possible?	NO	NO	YES

TABLE 9. Predicted properties of root-selecting, verb-selecting and phase-selecting causatives.

In this connection it is important to note that the ability of CAUSE to embed an external argument, i.e. an argument of Voice or an argument of high APPL, is not necessarily correlated with the ability of CAUSE to embed a DP that gets interpreted as bearing an agent relation to the caused event. This type of a dissociation was already observed for gapless Japanese adversity passives in §2.3.2. These constructions involved a high applicative head which embedded a dative phrase expressing the agent participant of the event described by the verb. While the construction involved an agent, it nevertheless lacked some of the defining features of agentive sentences, such as compatibility with a purpose-phrase:

(189) a. AGENTIVE UNERGATIVE + PURPOSE PHRASE
Hanako-ga wazato warat-ta.
Hanako-NOM on.purpose laugh-PAST
'Hanako laughed on purpose'

b. AGENTIVE UNERGATIVE IN A GAPLESS (=HIGH) ADVERSITY PASSIVE+ PURPOSE PHRASE
*Taroo-ga Hanako-ni wazato waraw-are-ta.
Taroo-NOM Hanako-DAT on.purpose laugh-PASS-PAST
'Taro was adversely affected by Hanako's laughing on purpose'

A similar situation will be observed with the verb-selecting causatives in §3.4.3; in these constructions CAUSE is able to embed an argument that is interpreted as an agent-participant of the caused event but these embedded agents are not, however, "agentive enough" to license agent-oriented adverbial modifiers. Even root-selecting causatives may sometimes embed apparent agent-arguments (as §3.5 shows for Japanese lexical causatives), but these "agents" also consistently fail structural diagnostics of agentivity. The conclusion will be that purpose-phrases require the presence of Voice, which a verb and root selecting causatives are unable to embed. Thus, embedded agents in verb selecting causatives must be introduced by some element other than Voice. The precise nature of this head will remain an open question in this dissertation.

The following three sections present results of testing the prediction of the proposed classification in various langauges; all data collected so far are consistent with the predictions in Table 9.

3.4.2. Root-selecting causatives

3.4.2.1. The Japanese "lexical" causative

As already discussed in § 3.2.2, Japanese has traditionally been described to have both so-called lexical and productive causatives. The purpose of this section is to show that Japanese "lexical" causatives have the properties of root-selecting causatives.

Japanese lexical causatives can be identified in two ways. First, they are often morphologically distinct from productive causatives. Second, they are associated with adversity interpretations, which are never possible with productive causatives.

The morphology of productive causatives is invariant: their causative suffix is always *sase*. In contrast, the causative morphology of lexical causatives can have several different forms (for a comprehensive list, see Jacobsen, 1992). Thus all causatives which are not spelled out with *sase* are

lexical. However, the converse does not hold, since *sase* is also the default pronunciation of lexical causatives (Miyagawa, 1998). Thus *sase* may be used to derive a lexical causative but only if the root is not able to combine with any other causative morphology. Thus distinguishing lexical causatives from productive ones morphologically is not always possible.

Fortunately, lexical causatives also differ from productive ones in the range of interpretations they allow. As already discussed in §3.2.2.mentioned earlier in this paper, the nominative argument of lexical causatives can be interpreted as an adversely affected argument while the nominative argument of productive causatives must always be interpreted as a causer. Thus an adversity interpretation is available both for (190a), where we have a lexical causative belonging to the *–e-/-as-* alternation class (i.e. *kogeru* 'burn' (intr.), *kogasu* 'burn' (tr.)) and for (190b), which is a lexical *sase* causative. In contrast, (190c) cannot be interpreted as an adversity causative since combining the root *kog* with the default *sase* forces a productive analysis.

(190) a. Taroo-wa niku-o kog-asi-ta.
Taro-TOP meat-ACC burn-CAUSE-PAST
(i) 'Taroo scorched the meat'
(ii) 'The meat got scorched to Taro's detriment' (adversity)

b. Taroo-ga hahaoya-o sin-ase-ta.
Taro-NOM mother-ACC die-CAUSE-PAST
(i) 'Taro caused his mother to die'
(ii) 'Taro's mother died on him' (adversity)

c. Taroo-wa niku-o koge-sase-ta.
Taro-TOP meat-ACC burn-CAUSE-PAST
(i) 'Taro caused the meat to scorch'
(ii) *'The meat got scorched to Taro's detriment' (adversity)

The hypothesis that Japanese lexical causatives are root-selecting predicts that adversity interpretations, which diagnose lexical causatives, should be unavailable in two situations: (i) with causatives where an VP-adverb modifies the caused event and (ii) with causatives where verbalizing morphology intervenes between the root and the causative suffix. (191) shows that the first prediction is born out. Here the VP-adverbs which are heavily biased towards modifying the caused rather than the causing event are combined with the verb *sinaseru*, 'cause to die'. In such as situation, adversity interpretations are clearly unavailable:

(191) a. Taroo-ga musuko-o isagiyoku sin-ase-ta.
Taro-NOM son-ACC bravely die-CAUSE-PAST
(i) Taro bravely caused his son to die.
(ii) *'Something caused Taro to be adversely affected by his son dying bravely.'[23]

b. Taroo-ga musuko-o sizukani sin-ase-ta.
Taro-NOM son-ACC quietly die-CAUSE-PAST
(i) 'Taro caused his son to die quietly.'
(ii) *'Something caused Taro's son to die quietly in the war and Taro was affected.'[24]

Similarly, adversity interpretations dissappear as soon as any verbal element intervenes between root and CAUSE. (192) shows that this prediction is born out for *sin-ase-ru* 'cause to die': attaching the desiderative morpheme *tai* between the root and *sase* makes an adversity interpretation impossible.

(192) Taroo-ga musuko-o sini-taku-sase-ta.
Taro-NOM son-ACC die-DES-CAUSE-PST
(i) 'Taroo made his son want to die'
(ii) *'Taro was adversely affected by his son wanting to die'

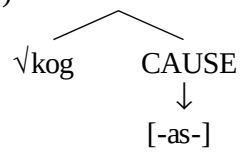
(192) does not, of course, rule out an analysis where lexical *sase* simply has some selectional restriction which disallows it to attach outside the desiderative *tai*. The impossibility of intervening morphology between lexical CAUSE and the root is, however, general in Japanese. Even *intransitive* morphology is disallowed from this position. Thus it is impossible to take an intransitive verb whose "intransitivity" is indicated by some piece of morphology and derive a lexical causative from it while maintaining the intransitive morphology. The intransitive variants of many Japanese lexical causatives have such overt morphology; the intransitive form of the pair *kogeru/ kogasu* 'burn(intr.)/burn (tr,)', already used above, can serve as an example.

This pair belongs to the *-e-/-as-* alternating class, i.e. the intransitive form of the verb is derived by adding *-e-* to the root and the transitive form by adding *-as-*. We can analyze this causative by saying that CAUSE is pronounced as *as* in the immediate environment of the root *kog*, following Miyagawa (1998):

[23] Notice that *bravely* combines with unaccusatives (*He died bravely in the war*) and is thus presumably not agent-oriented.

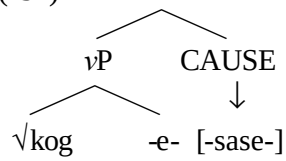
[24] With this example, one might imagine the interpretation 'Some quiet event caused Taro's son to die on him' to be available as well, if an appropriate context is given. I have not, however, been abe to elicit such a judgment. At this point I am unable to explain why this higher scope reading is unavailable in these cases.

(193)



However, if CAUSE is not in a local relation with *kog*, it must receive the default pronunciation *sase*. One way to construct such a nonlocal relationship is to merge the intransitive morpheme *-e-* to the root before merging CAUSE.

(194)



In the present framework, however, this makes the complement of CAUSE a *v*P and hence an impossible argument for a root-selecting causative head: the intransitive morphology is *verbal* morphology and therefore category-defining. Thus, we predict that 'kog-e-CAUSE' should not yield a lexical causative. Indeed, such as structure can only be interpreted as an indirect "productive" causative, i.e. it lacks an adversity interpretation, (195a):

(195) a. CAUSE NON-LOCAL TO ROOT:
Taroo-wa niku-o kog-e-sase-ta.
Taro-TOP meat-ACC burn-INTRANS-CAUSE-PST
(i) 'Taro caused the meat to become scorched.'
(ii) *'The meat got scorched to Taro's detriment.'

b. CAUSE LOCAL TO ROOT:
Taroo-wa niku-o kog-asi-ta.
Taro-TOP meat-ACC burn-CAUSE-PST
(i) 'Taro scorched the meat.'
(ii) 'The meat got scorched to Taro's detriment.'(adversity)

From the point of view of any theory that derives lexical causatives from intransitive verbs this result is extremely surprising; in such theories (195a) should be the canonical example of a lexical causative. In the present framework the result is, however, precisely what we expect: *any* verbal element intervening between the root and CAUSE is predicted to make a root-selecting analysis impossible, regardless of its semantic content, or lack thereof.

3.4.2.2. The English zero-causative

English zero-causatives are traditionally described as lexical causatives and, as already mentioned, VP-modifiers are in general unable to attach below their causative head. Thus, the sentence in (196) is false in situations where the action of the subject 'John' does not take place in the manners described by the adverb ‘grumpily’.

(196) John awoke Bill grumpily.

While this fact has been a famous argument against syntactic analyses of lexical causatives (Fodor, 1970; Fodor and Lepore, forthcoming), the syntactic account argued for here explains it via root-selection. If *grumpily* is a VP-modifier, it should not be able to modify the bare root under the causative. There remains, however, a question about those data which so far have been used to argue in *favor* of a syntactic decomposition account of English lexical causatives. These data are exemplified in (197); here the degree adverbs modify resultant states and, hence, must attach below the causative head.

(197) a. John closed the door partway.
b. John partly closed the door.
c. Roger half filled the glass.
d. Roger filled the glass halfway.
e. Nicolas mostly filled the glass. (Tenny 1999, 304:37)

Clearly, if these sentences involve adverbial scope below CAUSE, the prediction of the present account is that the adverbs must be modifying the root. If these modifiers can indeed combine directly with a root, then they should be able to do so even in the absence of a verbal environment. The data in (198) indicate that this is possible; here the adverbs combine with DP-internal adjectives derived from the roots in (197):

(198) a. a partway open door
b. a half full glass
c. a mostly full room

In contrast, ‘grumpily’, which does not have a possible lower attachment site in (196), is not able to modify the corresponding adjective:

(199) *a grumpily awake boy

The prediction then is that whenever an adverb can attach below CAUSE in a root-selecting causative, it should be able to modify the root in nonverbal environments as well.[25] There is, however, at least one case in English where this prediction is not borne out in any obvious way: the adverb 'again' is notoriously able to modify resultant states of causatives (see in particular von Stechow, 1996, for recent work), (200a), but combining the adverb with an adjective derived from the root results in ungrammaticality (200b). The lower scope reading of (200a) is often called the "restitutive" reading, i.e. the door is returned to its previous state of being open.

(200) a. John opened the door again.
b. *the again open door/ ??the open again door[26]

It is however worth noting, that (185b) becomes good if we add 'once' to the adverb:

(201) the once-again open door

At this point (200b) remains a puzzle for our theory but I take (201) to suggest that 'again' has at least some properties of category-flexibility, a requirement for root-modifying adverbs. However, while the distribution of *again* is somewhat problematic, the root-selection hypothesis makes a surprising, but correct, prediction about the possible interpretations of *again* in English causatives.[27] As a syntactic analysis of lexical causatives, the root-selection hypothesis contrasts with analyses where a causative such as *open* decomposes into three heads, as in [CAUSE[BECOME[open the door]]] (e.g. von Stechow, 1996). This type of an analysis should yield three, rather than two, adverbial scopes for *again*, i.e. those indicated in (202):

(202) a. John opened the door again.
(i) Agent's action is repeated:
✓*John did something again and as a result the door opened.*
(ii) Caused event is repeated:
**John did something and as a result the door opened again.*
(iii) Resultant state is repeated:
✓*John did something and as a result the door returned to its previous state of being open.*

However, as von Stechow also discusses, the intermediate scope is not available, which makes the CAUSE-BECOME decomposition problematic. But in the present analysis the unavailability of the

[25] Such adverbs should of course be able to modify roots in non-causative-alternating verbs, as well. This seems to be born out in cases such as *They partly destroyed the building*, where *partly* can be interpreted as modifying the resultant state only. Thanks to Irene Heim (p.c.) for pointing this out.
[26] For some speakers *again* sounds better when it follows the adjective, although even then a DP-internal *again* such as in (185b) is clearly ungrammatical.

intermediate scope is precisely what we would expect: *again* should be able modify either the resultant state denoted by the root *Öopen* or the causing event introduced by CAUSE.

The next question we need to ask is whether English causatives have the morphological properties of root-selecting causatives. If the root-selecting hypothesis is correct, it should be impossible to merge any verbal morphology between the CAUSE and the root in English. Since the English causative head often has no overt pronunciation, we must examine whether in English it is ever possible to causativize an intransitive verb that has some verbal morphology on it. As regards suffixal morphology, the prediction is difficult to test since virtually all overt English verbal suffixes are causativizers and hence derive transitive verbs:

(203) a. *-ize*: characterize, computerize, energize
b. *-en*: awaken, flatten, lengthen
c. *-ate*: captivate, liquidate, alienate
d. *-(i)fy*: beautify, notify, exemplify

A question arises, however, about transitive/intransitive pairs such as those in (204) where the suffix *-en* appears in both alternates. One hypothesis might be that *en* spells out morphology which derives an intransitive verb from the root √hard and that the causative is then derived by combining a zero causative suffix with this structure, (204c). But if this is correct, data such as these would constitute a problem for the root-selecting analysis, which would not allow any verbal morphology between the root and CAUSE. Alternatively, it could be the case that *en* is homophonous between intransitive and causative morphology, (204d).

(204) a. The metal hard*en*ed.
b. John hard*en*ed the metal.
c. Intransitive: [hard] en_{intr}]] Transitive: [hard] en_{intr}] $\varnothing_{cause}$]]]
d. Intransitive: [hard] en_{intr}]] Transitive: [hard] en_{cause}]]

Fortunately for the root-selection analysis, the analysis in (204c) makes the wrong prediction about the distribution of *en* suffixal intransitives: (204c) predicts every *en*-causative to have an intransitive counterpart where the morphology *en* also occurs, but this is not born out. For example, *fatten* lacks an intransitive alternant, (205b) (Parsons, 1990).

(205) a. We fattened the pig over the summer.
b. *The pig fattened over the summer.

[27] Thanks to Irene Heim (p.c.) for pointing this out.

Thus there appears to be evidence against an analysis such as (188c) where verbal morphology intervenes between root and CAUSE and the data seem compatible with the view that *en* in English spells out root-selecting causative morphology.

As regards English prefixes, very few derive intransitive verbs. The list in (206) should be fairly comprehensive.

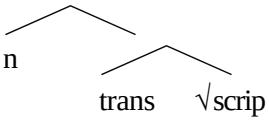
(206) a. *re-*: rebuild, redefine
b. *dis-*: disarm, disconnect, dislike
c. *over-*: overbook, overcome, overeat
d. *un-*: unbend, unfold, unload
e. *mis-*: misbehave, mispronounce
f. *out-*: outdo, outgrow, outperform
g. *be-*: befriend, behead
h. *co-*: coexist, co-star
i. *de-*: decode, devalue
j. *fore-*: foresee, foretell
k. *inter-*: interact, interface, intermarry
l. *pre-*: prejudge, pretest
m. *sub-*: subtitle, subdivide
n. *trans-*: transact, transform
o. *under-*: undercut, undergo, underuse

Of these, there is one example that participates in the causative alternation: *transform*:

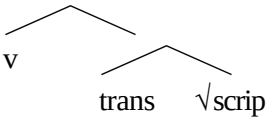
(207) a. He transformed into a moviestar.
b. I transformed him into a moviestar.

Since *trans* can intervene between a (null) causative head and the root *Öform*, the present analysis predicts that *trans* should be non-category defining. Indeed, *trans* occurs in both verbal and nominal environments:

(208) a. N: transcript



b. V: transcribe



Importantly, root-selecting morphology can attache outside *trans*, as in *transcription*, for example.

This section has illustrated how the predictions of the root-selection hypothesis are verified in Japanese and English. The following section turns to verb-selecting causatives.

3.4.3. Verb-selecting causatives

3.4.3.1. Bemba

The Bemba causative has been argued to constitute a problem for the traditional syntactic vs. lexical typology of causative constructions (Givón, 1976). The causative is generally described as "lexical" but it nevertheless allows lower scope for some adverbs. The properties of the Bemba causative are, however, easily accounted for by the present proposal, where this causative would patterns as verb-selecting. Recall that the verb-selecting hypothesis predicts agentive adverbial modification and external argument introducing morphology to be impossible inside a causative.

As predicted, the Bemba causative allows lower scope for non-agentive manner-adverbs, (209), but disallows it for agentive adverbs, (210):

(209) Naa-butwiish-ya Mwape ulubilo.
I.past-run-CAUSE Mwape fast
(i) 'I made Mwape RUN QUICKLY'
(ii) *'I QUICKLY MADE Mwape run' (Givón, 1976, 343: 120)

(210) a. Naa-mu-fuund-ishya uku-laanda iciBemba ku-mufulo
I-PAST-him-learn-CAUSE to-speak Bemba on-purpose
(i) 'I, on purpose, made him learn to speak Bemba'
(ii) *'I made him on purpose learn to speak Bemba'
(Givón, 1976, 329: 18)

b. Naa-butwiishya umuana ukwiitemenwa
(i) *'I made the boy RUN WILLINGLY'
(ii) 'I WILLINGLY MADE the boy run' (Givón, 1976, 345: 136)

Since the Bemba causative allows verbal modification of the caused event, verbal morphology should also be possible between the causative affix and the root. Indeed, many verbal affixes, such as the stative and reciprocal heads, are able to intervene between the causative morpheme and the root:

(211) a. Naa-tem-**ek**-eshya iciimuti
1sg.past-cut-**STAT**-CAUSE stick
'I caused the stick to be cut' (Givón, 1976, 332: 40)

b. Naa-mon-**an**-ya Mwape na Mutumba
I.past-see-**REC**-CAUS Mwape and Mutumba
'I made Mwape and Mutumba see each other' (Givón, 1976, 335: 66)

But, crucially, high applicative morphology should not be able to scope under CAUSE. (212a) indicates that the Bemba benefactive is a high applicative, as it combines with unergatives. (212b) shows that this high applicative is indeed unable to scope under CAUSE, as predicted if the causative is verb-selecting:

(212) a. Mwape aa-boomb-ela Mutumba
'Mwape worked for Mutumba' (Givón, 1976, 345: 136)

b. *Naa-tem-en-eshya Mwape Mutumba iciimuti
I-cut-BEN-CAUS Mwape Mutumba stick
'I made Mwape cut Mutumba a stick' (Givón, 1976, 345: 136)

Thus, while the Bemba causative has been viewed as a problem for the traditional syntactic vs. lexical typology, its properties are easily accounted for by the present analysis.

3.4.3.2. Finnish

The *–tta* causative in Finnish provides an additional example supporting the existence of verb-selecting causatives. Like the Bemba causative, the Finnish causative also asymmetrically allows non-agentive, (213a), but not agentive, (213b), modification of its caused event:

(213) a. Opettaja laula-tti kuoro-a kauniisti
teacher sing-CAUS choir-PAR beautifully
'The teacher made the choir sing beautifully'
(teacher's action does not need to be beautiful)

b. Ulla rakenn-utti Mati-lla uude-n toimistopöydä-n innokkaasti.
Ulla.NOM build-CAUS Matti-ADE new-ACC officetable-ACC enthusiastically
(i) 'Ulla, enthusiastically, had Matti build her a new officedesk'
(ii) *'Ulla had Matti, enthusiastically, build her a new officedesk'

Consistent with the verb-selecting hypothesis, the Finnish causative in addition allows verbal morphology to intervene between the causative morpheme and the root, (214).

(214) a. raivo- 'rage'
raivo-stu- 'become enraged'
raivo-stu-tta 'cause to become enraged'

b. seiso- 'stand'
seiso-skele 'stand around'
seiso-skel-utta 'cause to stand around'

Finnish does not have high applicatives, and therefore testing whether they are disallowed from appearing below CAUSE is impossible. As in English, Finnish applied constructions are low, as shown by the impossibility of applicativized unergatives and static verbs in (215). Thus causativizing Finnish low applicatives is predicted to be possible and this is indeed the case, (216):

(215) FINNISH APPLICATIVES ARE LOW

a. IMPOSSIBLE TO APPLICATIVIZE AN UNERGATIVE VERB[28]

*Minä juoks-i-n Mari-lle.
I run-PAST-1SG Mari-ABL
'I ran for Mari'

a. IMPOSSIBLE TO APPLICATIVIZE A STATIC VERB

*Minä pidin Mari-lle kassi-a.
I held Mari-ABL bag-PAR
'I held a bag for Mari'

(216) THE FINNISH VERB-SELECTING CAUSATIVE CAN EMBED A LOW APPLICATIVE

Minä kirjoit-ut-i-n Marja-lle kirjee-n Miko-lla.
I.NOM write-CAUSE-PAST-1SG Marja-ALL letter-ACC Mikko-ADE
'I made Mikko write Marja a letter'

3.4.4. Phase-selecting causatives: Venda and Luganda

Finally, we turn to phase-selecting causatives, which should not exhibit any of the restrictions that hold for root and verb-selecting causatives. Here I focus on Bantu since what is crucial for the present proposal is demonstrating a correlation between the possibility for lower scope agentive modification and embedded high applicative morphology.

Both the Venda *-is-* causative and the Luganda *-sa-* causative allow various verbal affixes to intervene between the causative morpheme and the root:

(217) VENDA

Reciprocal *-an-* inside causative:

a.	*-vhona*	'see'	
b.	*-vhon-is-a*	'cause to see'	CAUSE
c.	*-vhon-an-a*	'see each other'	REC
d.	*-vhon-an-is-a*	'cause to see each other'	REC-CAUSE

[28] Irrelevantly, this example is good under the interpretation where *Mari-lle* is construed as a PP and the meaning is approximately: I ran over to Mari's place.

Reversive inside causative:

e.	*-tiba-*	'put a lid on, cover'	
f.	*-tib-is-a-*	'cause to put a lid on, cover'	CAUSE
g.	*-tib-ul-a-*	'remove a lid'	REV
h.	*-tib-ul-is-a-*	'cause to remove a lid'	REV-CAUSE

(218) LUGANDA

Reciprocal inside causative:

a.	*-laba-*	'see'	
b.	*-laba-gana-*	'see each other'	REC
c.	*-laba-ga-za-*	'make see each other'	REC-CAUSE

Stative inside causative:

d.	*-laba-*	'see'	
e.	*-lab-ik-a-*	'be visible, appear'	STAT
f.	*-lab-i-s-a-*	'make visible'	STAT-CAUSE

However, unlike the verb-selecting causative in Bemba, the Venda and Luganda causatives both allow also high applicative morphology to intervene between the causative head and the root, (219-220). The fact that the applicative morpheme in both (219) and (220) attaches to an unergative indicates that the applicative is high.

(219) VENDA

a.	*-tshimbila*	'walk'	
b.	*-tshimbi-dz-a*	'make walk'	CAUSE
c.	*-tshimbil-el-a*	'walk for'	APPL
d.	*-tshimbil-e-dz-a*	'make [walk for]'	APPL-CAUSE

(220) LUGANDA

a.	*-tambula-*	'walk'	
b.	*-tambu-za-*	'make walk'	CAUSE
c.	*-tambul-ir-a-*	'walk for'	APPL
d.	*-tambul-i-z-a-*	'make [walk for]'	APPL-CAUSE

Consequently, the Venda and Luganda causatives should also allow lower scope agentive modification; the data in (221) and (222) verify that this is the case. Both sentences are judged true even in situations where the higher scope reading would be false (i.e. the highest agent is uneager, (221), or undedicated, (222)).

(221) VENDA

Muuhambadzi	o-reng-is-a	Katonga	mo̱doro	nga dzangalelo
salesman	3SG.PAST-buy-CAUSE-FV	Katonga	car	with enthusiasm

'The salesman made Katonga BUY THE CAR EAGERLY'

(222) LUGANDA

Omusomesa	ya-wandi-s-a	Katonga	ne obu nyikivu
teacher	3SG.PAST-write-CAUSE-FV	Katonga	with the dedication

'The teacher made Katonga WRITE WITH DEDICATION'

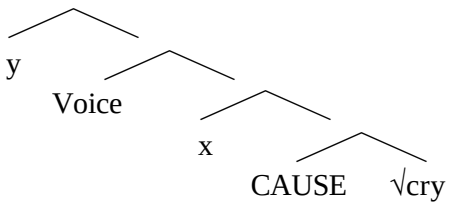
Thus the Bantu data indeed support the notion that high applied arguments and arguments of Voice form a natural class with respect to causativization. Recent work by McGinnis (2000, 2001a,b,) and Rackowski (2001) suggest that these arguments class together for various types of movement phenomena, as well.

3.5. Voice-bundling and transitivity restrictions

So far I have argued that crosslinguistic variation in causative constructions has two structural sources: (i) Voice-bundling, i.e. whether CAUSE and Voice are realized in the same or in separate syntactic heads and (ii) selection, i.e. what type of a complement CAUSE selects for. I have argued that the Voice-bundling parameter accounts for crosslinguistic variation in the occurrence of unaccusative causatives and the selection parameter in the possibilities for lower scope adverbial modification and for intervening verbal morphology between root and CAUSE. This section shows how these two parameters also make predictions about the possibility for causativizing unergatives. Specifically, a causativized unergative structure should be impossible with the English-type zero causative head, i.e. a causative that is both root-selecting and Voice-bundling.

Let us first sketch what root-causativizing an unergative would mean structurally. Since a root-selecting causative head must combine with a root directly, Voice cannot intervene between the root and CAUSE. Therefore, the causee, i.e. the participant caused to perform an action, cannot be introduced below CAUSE. Consequently, it must be introduced above CAUSE but below the Voice head introducing the external argument. In other words, in such a structure we would need to assume that CAUSE takes two arguments, the root and a causee (cf. Alsina, 1992):

(223) ROOT-CAUSATIVIZED UNERGATIVE



But clearly, this structure would be impossible in a language in which CAUSE cannot occur independently of Voice: such a causative would offer no possible position for the causee to be realized. Thus, under the hypothesis that the English causative head is both root-selecting and Voice-bundling, the fact that causativized unergatives are in general impossible in English is accounted for, (224).[29]

(224) *John cried the child.

Conversely, we predict that root-causativization of unergatives should be possible in a language where CAUSE occurs independently of Voice. In this dissertation I have argued that the Japanese lexical causative is both root-selecting and has an independent CAUSE head. Thus the present system predicts that root-causativization of unergatives should be possible in Japanese. In what follows we shall see evidence that the translation of *John cried the child* is, indeed, a grammatical lexical causative in Japanese.

(225) John-ga kodomo-o nak-asi-ta.
John-NOM child-ACC cry-CAUSE-PAST
'John made the child cry'

(225) cannot be interpreted as an adversity causative,[30] but there are at least two other ways to show that (225) is a lexical (i.e. a root-selecting) causative. The first test involves idiomatization. Miyagawa (1980, 1986) convincingly shows that Japanese causatives can be associated with idiomatic interpretations only if they are lexical, not if they are productive. The data in (226) illustrate the phenomenon. (226a) shows that the lexical causative *da-s* 'put out' (from the root *de* 'come out') has the idiomatic interpretation 'do diligently' when combined with 'energy' as the object. In contrast, no such reading is available for the productive causative *de-sase*; *de-sase* can only be interpreted transparently as 'make come out', (226b,c):

[29] Manner of motion verbs constitute a famous apparent counter example to the generalization that unergatives do not causativize in English. However, according to Pinker (1989) and Levin and Rappaport (1995), manner of motion verbs causative only when they are used in their directed motion sense (*The general marched the soldiers to the tents* vs. *??The general marched the soldiers*). See Levin and Rappaport (1995:182-189) for arguments that manner of motion verbs are, in fact, unaccusative in their directed motion sense.

[30] Pylkkänen (2000) argues that the adversity causative is a low source applicative which embeds the structure of a gapped adversity passive under a causative head. If this is correct, it is quite natural for a causative such as 'cause to cry' to lack an adversity interpretation since its semantics does not involve the type of change that is generally required for low applicatives (recall the impossibility of low applicatives from verbs such as *hold*). Notice that since the present hypothesis is that in root-causativized unergatives, CAUSE+Root takes the causee as its *internal* argument, (223), the unavailability of an adversity interpretation in (225) does not reduce to the impossibility of relating low applied arguments to external arguments.

(226) a. LEXICAL CAUSATIVE: ✓IDIOM
Taroo-ga hatake shigoto-ni sei-o da-su
Taroo-NOM farm work-DAT energy-ACC come.out-CAUSE.PAST
'Taro did the farm work diligently'

b. PRODUCTIVE CAUSATIVE: *IDIOM
*Taroo-ga hatake shigoto-ni sei-o de-sase-ta
Taroo-NOM farm work-DAT energy-ACC come.out-CAUSE
'Taro did the farm work diligently'

c. PRODUCTIVE CAUSATIVE: ✓TRANSPARENT READING
Taroo-ga Hanako-o heya-kara de-sase-ta
Taro-NOM Hanako-ACC room-FROM come.out-CAUSE-PAST
'Taro made Hanako come out of the room'

(adapted from Miyagawa, 1989, p. 127)

The example in (227) shows that the Japanese causative *nakasiru* 'cause to cry' is associated with an idiomatic intepretation, which makes it pattern with lexical, rather than productive causatives with respect to idiomatization.

(227) 'CAUSE TO CRY': + IDIOM
Ano kodomo-ga itumo oya-o nak-asi-te iru
that child-NOM always parents-ACC cry-CAUSE-PROG be
'That child is always troubling his parents'

(adapted from Miyagawa, 1980, ex. 95)

A second diagnostic supporting the lexical, i.e. root-selecting status of 'cause to cry' involves double causativization. In Japanese, double causatives are possible only if the first causative is lexical, not if it is productive (Kuroda, 1993). Thus, the lexical causative *da-s* 'put out' can undergo further causativization, (228a), while the productive causative *de-sase* 'make come out' cannot, (228b).

(228) a. LEXICAL CAUSATIVE: ✓DOUBLE CAUSATIVE
Taroo-ga Hanako-ni gomi-o da-s-ase-ta
Taro-NOM Hanako-DAT garbage-ACC come.out-CAUSE-CAUSE-PAST
'Taro made Hanako put out the garbage'

b. PRODUCTIVE CAUSATIVE: *DOUBLE CAUSATIVE
*Keisatsu-ga Taroo-ni dorobo-o ie-kara de-sase-sase-ta
police-NOM Taro-DAT thief-ACC house-FROM come.out.-CAUSE-CAUSE-PAST
'The police made Taro make the thief come out of the house'

Consistent with the idiomatization data, 'cause to cry' can function as the first causative in a double causative, (229), which further supports its status as a lexical, i.e. a root-selecting, causative.

(229) 'CAUSE TO CRY': DOUBLE CAUSATIVE

Taroo-ga	Jiroo-ni	sensei-o	nak-as-ase-ta.
Taroo-NOM	Jiroo-DAT	teacher-ACC	cry-CAUSE-CAUSE-PAST

'Taro made Jiro make the teacher cry'

However, for the conclusion that Japanese has root-causativized unergatives to truly follow, we must still show that the verb *cry* is, in fact, unergative in Japanese. One way to test this is by examining its possible interpretations when combined with the excessive marker *sugi*. The suffix *sugi* is called an "excessive" marker as it adds an excessive interpretation to the verb it combines with. The relevant fact for our purposes is that when *sugi* combines with an unaccusative verb, the sentence is ambiguous between a so-called subject-quantitative reading (i.e. 'too many X V'ed') and a so-called repetitive reading (i.e. 'X V'ed too often/too much), (230a). In contrast, when *sugi* combines with an unaccusative verb, only the repetitive reading is available, (230b) (Kikuchi 2001):

(230) UNACCUSATIVE: ✓QUANTITATIVE READING ON SUBJECT

a. Kodomo-ga heay-ni hairi-sugi-ta
child-NOM room-DAT enter-TOO-PAST
(i) The child entered the room too much/too often (repetitive)
(ii) Too many children entered the room. (quantitative)

UNERGATIVE: *QUANTITATIVE READING ON SUBJECT

b. Kodomo-ga odori-sugi-ta
child-NOM dance-TOO-PAST
(i) The child danced too much/too often (repetitive)
(ii) *Too many children danced. (quantitative)

With respect to *sugi*-interpretations, *cry* patterns as unergative, i.e. it lacks the subject-quantitative reading when combined with *sugi*:

(231) Kodomo-ga naki-sugi-ta
child-NOM cry-TOO-PAST
(i) 'The child cried too much/too often'
(ii) *'Too many children cried'

Thus there is support for the prediction that root-causativization of unergatives is possible in Japanese. Perhaps even more strikingly, many lexical causatives in Japanese have transitive bases, yielding ditransitive causatives. The list in (232) is from Matsumoto (1998). Here all the causative forms are

associated with morphology other than *sase*, which tells us that the causatives are lexical (i.e. root-selecting).[31]

(232)

Transitive		*Ditransitive lexical causative*	
kiru	'put on one's body/wear'	kiseru	'put on sb else's body'
abiru	'be covered with (bathed in)'	abiseru	'pour over'
kaburu	'become covered with'	kabuseru	'cover with'
miru	'see'	miseru	'show'
osowaru	'learn'	oshieru	'teach'
sazukaru	'receive'	sazukeru	'endow'
azukaru	'be entrusted'	azukeru	'entrust'
tamawaru	'receive'	tamau	'give'
kariru	'borrow'	kasu	'lend'
kuu	'eat'	kuwas	'feed'

Of these, at least *kuu* 'eat' and *miru* 'see' take true external arguments, and therefore, the causees of their causativized counterparts could not be incorporated into the structure unless the Japanese CAUSE was independent of Voice. The Japanese lexical causative is thus a candidate for a root-selecting CAUSE independent of Voice.

3.6. Summary

This chapter has argued for a fully syntactic theory of causativization where all causative constructions are treated as involving the same functional element CAUSE. Differences in causative cosntructions were hypothesized to arise from two sources. First, I proposed that the relationship of CAUSE to the external argument introducing head Voice was subject to variation: CAUSE could be either independent of the external argument relation or these two elements could be grouped together into a morpheme/syntactic head. A causative head that is independent of Voice can potentially derive an unaccusative causative, as was seen in Finnish and in Japanese, whereas a causative head that realizes both CAUSE and Voice always introduces an external argument.

The size of the complement to CAUSE was argued to constitute a second source of variation. Specifically, I hypothesized that the possible complements of CAUSE are directly given by an architecture of the verbal domain where functional elements not only introduce the external argument (Kratzer, 1996) but also define the category of otherwise category-free roots (Marantz, 1997). This type

[31] Ditransitive lexical causatives have not played a prominent role in research on Japanese causatives, but they were incorporated into the lexicalist theory of Miyagawa (1980, 1989) where verbs were postulated to be organized into "paradigmatic structures" which had slots for intransitive, transitive and ditransitive forms of the verbs.

of a verbal structure yields three possible kinds of complements for CAUSE: the root, the *v*P and the phase. I tested this hypothesis in six languages by investigating what types of adverbs can take scope below CAUSE and what types of other functional heads CAUSE can embed. We saw evidence that VP-modifiers can scope below CAUSE only if it is also possible to merge verbal morphology below CAUSE, and that agent-oriented modifiers can scope below CAUSE only if it is also possible to merge external argument-introducing morphology there. These data support the Kratzer-Marantzian verbal architecture and suggest that the category-defining head *v* and the external argument-introducing head Voice define important syntactic and semantic boundaries in the verbal domain. Interestingly, the data presented here show that causativization treats external arguments and high applied arguments as a natural class; causatives that cannot embed a high applicative head also do not allow agent-oriented adverbs to scope under CAUSE. The consequences of this discovery to theories of external arguments will be discussed in Chapter 4.

Finally, the Voice-bundling and Selection parameters together yielded an explanation for why the distribution of causativization in English, for example, is limited to unaccusatives. We saw that if a causative is both Voice-bundling and root-selecting, it simply offers no room for the realization of the causee argument. The prediction then is that causatives which have the English-type distribution are indeed both Voice-bundling and root-selecting.

One must, however, ask whether the Kratzer-Marantzian architecture is the only one that might yield the observed three causative classes. In particular, what precicely is the evidence that the smallest type of causatives, i.e. root-selecting causatives, select for roots and not for some other type of *non-verbal* constituents? For example, would it be possible to treat English causatives as either denominal or deadjectival?[32] At this point my strongest argument against such a position is a cross-linguistic one: treating the English causative as denominal or deadjectival would make it a fundamentally different phenomenon from "lexical" causatives such as those found in Japanese. In Japanese, lexical causatives can be formed from unergatives, such as *cry*, and from transitives, such as *eat*, *see* or *borrow*; for these cases one would be hard-pressed to defend a deadjectival or a denominal account. Thus analyzing English causatives as denominal or deadjectival would fail to capture any similarity between English and Japanese lexical causatives. In the root-selecting analysis, on the other hand, English and Japanese lexical causatives are the same, except that that the Japanese causative head is not Voice-bundled, and this is what gives them the wider distribution.

[32] This proposal is closest to Hale and Keyser's (1993, 1998) theory where English causatives are either denominal (*break*), deadjectival (*clear*) or deverbal (*sink*). Since Hale and Keyser maintain that some English causatives have two verbs, their theory is at least partically subject to the Fodorian adverbial scope objection (see Fodor and Lepore, forthcoming).

3.7. Implications for Bantu morpheme ordering restrictions

The restriction that Bantu causative morphology often cannot appear inside applicative morphology is, in fact, a much-discussed property of the Bantu verb (Hyman and Mchombo, 1992; Hyman 2002). According to Hyman (2002), the morpheme order CAUSE-APPL was part of the Proto-Bantu verbal template, and due to this, it is still the "default" morpheme order in most Bantu languages. The data in (233) illustrate the restriction for Chichewa:

(233) CHICHEWA: *mang-ir-its ✓mang-its-ir
tie-APPL-CAUS tie-CAUS-APPL (Hyman and Mchombo, 1992)

On the theory developed here, these Chichewa data suggest that the causative *its* is verb or root-selecting, which would explain its inability to embed an applicative head that introduces an external argument (assuming the applicative is high). This explanation is in sharp contrast with previous analyses, which have attributed the restriction to morpho-phonology entirely. The reason for taking the *APPL-CAUSE restriction to not be of syntactic nature has been the observation that the reverse order, i.e. CAUSE-APPL, can be used to convey meanings where semantic scope of the morphemes seems to be the (illegal) APPL-CAUSE, (234b).

(234) a. APPL RELATES AN INSTRUMENT TO THE *CAUSING* EVENT (TRANSPARENT SCOPE)
alenjé a-ku-líl-íts-il-a mwaná ndodo
hunters 3PL-PROG-cry-**CAUSE-APPL**-FV child sticks
'The hunters are making the child cry with sticks'

b. APPL RELATES AN INSTRUMENT TO THE *CAUSED* EVENT (INVERSE SCOPE)
alenjé a-ku-tákás-its-il-a mkází mthíko
hunters 3PL-PROG-stir-**CAUSE-APPL**-FV womanspoon
'The hunters are making the woman stir with a spoon' (Hyman, 2002: ex.3)

Hyman (2002) invokes two optimality theoretic constraints TEMPLATE and MIRROR to account for the morpheme ordering restriction and inverse scope. TEMPLATE demands that the Proto-Bantu morpheme order CAUSE-APPL be respected and MIRROR that morpheme ordering should follow compositionality. Cases such as (234b) are then a result of TEMPLATE overranking MIRROR; i.e. compositionality is violated in order to conform to the Proto-Bantu templatic morpheme order. Thus Hyman adopts a "morpho-centric" approach motivated by the properties of Proto-Bantu; the analysis does not entertain the possibility that the Bantu morpheme ordering restrictions might inform us about the general properties of the syntax-semantics interface in the verbal domain.

The system developed here offers an alternative hypothesis: it predicts that the morpheme order APPL-CAUSE should be impossible whenever the applicative is high and the causative is unable to embed external arguments, i.e. the causative is either root or verb-selecting. In this chapter we already saw that in those cases where the order APPL-CAUSE *is* grammatical, the causative is able to embed a true external argument (§3.4.4.), which is impossible with root and verb-selecting causatives (§3.4.2., (§3.4.3.). If the correlation between high applicative morphology and agentive semantics turns out to be general, it offers a strong argument against purely morphophonological accounts of the *APPL-CAUSE restriction.

Of course there remains the question of how the present system might handle the apparent cases non-transparent scope exemplified in (234b), which, quite obviously, are the strongest argument for a morpho-phonological account. At this point I can only hope that a better understanding of high applicative semantics will cast light on this; it is good to bear in mind that the hypothesis that high APPL and Voice have precicely the same kind of interpretation is a very rudimentary one, and ultimately quite likely wrong (see Ch. 4 for discussion). For example, we might take the cases where the morpheme order CAUSE-APPL does not seem to reflect the interpretation of the sentence as evidence that, unlike Voice, high APPL is vague about which event in its complement the new participant relates to. In this dissertation, I am unable to explore these questions further; future work will hopefully determine the plausibility of the present theory as an explanation for at least some of the morpheme restrictions observed in Bantu.

3.8. Previous approaches to causativization

The claim that causatives divide into three different syntactically derived types stands in sharp contrast to much prior research on causativization, which has maintained that causatives divide into two classes: those that are built in the lexicon and those that are built in the syntax (e.g. Shibatani, 1973; Cooper, 1976; Kachru, 1976; Matisoff, 1976; Dubinsky, Lloret, Newman, 1988; Kuroda, 1993; etc.). Lexical causatives have been argued to behave as nondecomposable syntactic units in every possible way while syntactic causatives have been argued to posses a so-called bi-clausal structure, i.e. a structure where the causative head embeds the full verbal structure of the underlying predicate. As already mentioned at the beginning of this chapter, lexicalist approaches face a challenge in explaining why lexical causatives sometimes do *not* behave as syntactically non-decomposable units, i.e. there are modifiers whose interpretation is ambiguous even with lexical causatives (*half*, *part-way*, and so forth). Further, I have argued that the data exhibit more distinctions than what the lexical vs. syntactic typology

would predict: in addition to the traditional "lexical" and "bi-clausal" causatives, there is a causative that is clearly not lexical, since it allows VP-modifiers to modify the caused event, and that is clearly not bi-clausal, since it cannot embed an external argument. Thus, to the extent that the three-way classification argued for here stands further cross-linguistic testing, it constitutes a strong argument against the traditional lexical vs. syntactic typology, which only predicts a two-way typology.

In addition to the question of *where* causatives are derived (i.e. in the syntax or in the lexicon), much debate has taken place over the question of whether the intransitive or the transive form of English causative-alternating verbs is basic. Here I have argued that neither is: both the intransitive and the transitive *break*, for example, involve the same root, but neither is derived from the other.[33] However, Levin and Rappaport (1995, henceforth L&R) develop a detailed argument for treating those English unaccusatives that participate in the causative alternation as underlyingly causative. Since such evidence would clearly be problematic for the present account, the rest of this section will review L&R's arguments for the underlying causativity of English causative alternating verbs.

In L&R's theory, English has no process of causativization; rather, it only has a process of detransitivization which is able to suppress the external cause argument of causative alternating verbs. L&R argue that a verb such as *break* involves the lexical semantic representation shown in (235) where the intransitive form of the verb is derived by *lexically binding* the causer argument prior to argument structure linking. According to L&R, the detransitivization of causatives differs from passivization in that passivization binds an argument at the level of argument structure, thereby preventing its projection to syntax (Grimshaw, 1990). Detransitivization, on the other hand, occurs at the level of lexical semantic representation (LSR), which means that the causer argument is not even represented at argument structure.

(235) a. Intransitive *break*

LSR	[[*x* DO-SOMETHING] CAUSE [*y* BECOME *BROKEN*]]
	↓
Lexical binding	∅
Linking rules	↓
Argument structure	<*y*>

b. Transitive *break*

LSR	[[*x* DO-SOMETHING] CAUSE	[*y* BECOME *BROKEN*]]
Linking rules	↓	↓
Argument structure	*x*	<*y*>

(Levin and Rappaport, 1995:108)

There are many aspects about the representations in (235) that are incompatible with the present framework, but I here I wish to concentrate on L&R's arguments in favor of the general claim that a verb such as *break* has a causative semantics even in its intransitive use.

First, L&R observe than the transitive variants of causative alternating verbs often accept a wider range of objects than their intransitive counterparts allow subjects. For example, the causative-alternating verb *clear* can be used intransitively when the entity clearing is the sky but not when it is the table:[34]

(236) a. The wind cleared the sky.
b. The sky cleared.

(237) a. The waiter cleared the table.
b. *The table cleared.

L&R take this to be evidence that the intransitive *clear* is derived from the transitive *clear*, since otherwise one would need to derive *The waiter cleared the table* from the impossible intransitive variant in (237). According to L&R, the basic use of the verb is the one with the loosest selectional restrictions, and therefore, data such as those in (237) show that the transitive form of the verb *clear* is basic. Essentially, to account for (237b), L&R need to say that *clear* cannot detransitivize when the object is a table since tables are not the sorts of things that can clear by themselves. But a similar analysis is compatible with the present account: the root *clear* must occur in a causative environment when the object that clears is something like a table, otherwise the sentence is anomalous. Thus, as far I can see, selectional restrictions do not force an underlyingly causative semantics for causative alternating unaccusatives.

Second, L&R point out that unaccusative verbs readily acquire transitive uses even if they are generally not used transitively. Thus, for example, a verb such as *deteriorate*, can easily be used transitively (*The pine needles were deteriorating the roof*) even though this is uncommon. Unergatives, on the other hand, never acquire transitive uses where the intransitive subject becomes the transitive object. This, L&R argue, shows that unaccusatives are underlyingly causative while unergatives are not. It seems to me, however, that while L&R's observation is a further argument for the *generalization* that in English, unaccusatives have causative counterparts while unergatives do not, it does not speak to the directionality of causativization. The present theory derived this distribution causativization from the combination of the Voice-bundling and root-selection parameters.

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[33] The assumption that so-called argument structure alternations do not necessarily involve deriving one alternant form the other was already argued for by Marantz (1984). See also Arad's (1999) analysis of psychological causatives for recent relevant work.

[34] Alec Marantz points out (p.c.) that *The table cleared* is actually good in a context where an ant-covered table clears as the ants climb off it.

L&R's third argument has to do with the morphological relationship between the transitive and intransitive variants of causative alternating pairs. They cite a survey by Nedjalkov (1969) which shows that the intransitive form of the verb *break* is morphologically more complex than its transitive use in 22 out of 60 languages surveyed, identical to to the transitive use in 19 of the 60 languages and less complex in 19 of the 60 languages surveyed. Thus, only in approximately one third of these languages was the transitive verb morphologically more complex than the intransitive verb, which L&R take as evidence for saying that the transitive use is basic.

Clearly, an analysis that attempts to derive a causative verb from the intransitive counterpart runs into trouble in accounting for cases where the intransitive form is associated with overt morphology that is absent from the causative. But recall that the present theory is not of this sort. If the causative and unaccusative versions of a root such as *break* are associated with different root-selecting verbal heads, there is nothing in the system that dictates which one of these, if either, should receive an overt pronunciation. Thus, there is no argument in Nedjalkov's data agaist the account developed here.

Finally, L&R present a semantic argument in favor of a causative analysis of unaccusatives, which they draw from Chierchia (1989). The argument has to do with the possible interpretations of the adverbial *by itself*, which according to L&R is ambiguous between the meaning 'without outside help' and 'alone'. English unaccusatives combine with *by itself* and are compatible with the 'without outside help' interpretation.

(238) a. The plate broke by itself.
b. The door opened by itself. (Levin and Rappaport, 1995, p. 88)

According to L&R, the adverbial *by itself* modifies a cause which anaphorically refers to the theme argument itself. If there is no underlying cause, as with unergatives, *by itself* should not have its 'without outside help' interpretation, L&R predict. Indeed (239) can only mean that Molly laughed alone, rather 'without outside help':

(239) Molly laughed by herself. (Levin and Rappaport, 1995, p. 89)

Thus L&R argue that compatibility with *by itself* is evidence for an underlying cause, which is interesting since the Japanese data presented in §3.2.2. suggested precisely the opposite: adversity causatives that can independently be shown to involve an implicit cause are *incompatible* with *katteni* 'by oneself', thus contrasting with unaccusatives and adversity passives. The data are repeated below:

(240) a. ??ADVERSITY CAUSATIVE + 'BY ITSELF': (=167)
??Taroo-ga musuko-o katteni korob-ase-ta
Taro-NOM son-ACC by.self fall.down-CAUSE-PAST
'Something caused Taro's son to fall down on him all by himself'

b. ✓ADVERSITY PASSIVE + 'BY ITSELF':
Taroo-ga musuko-ni katteni korob-are-ta
Taro-NOM son-DAT by.self fall.down-PASS-PAST
'Taro's son fell down on him all by himself'

c. ✓UNACCUSATIVE + 'BY ITSELF':
Taroo-ga katteni koronda.
Taro-NOM by.self fell.down
'Taro fell down all by himself'

The Japanese data fit the hypothesis that *katteni* asserts that the event described has no cause and that, therefore, any construction that does assert the existence of a cause, such as the adversity causative, is truthconditionally incompatible with it. In contrast, the hypothesis that *katteni* 'by oneself' anaphorically refers to an underlying cause fails to account for the ungrammaticality of (240a). Also, the 'anaphoric cause' hypothesis raises the question of why these sorts of by-phrases would necessarily need to be anaphoric. In other words, why is it that the underlying cause cannot be specified to be something else besides the theme argument itself, as was possible with the Japanese adversity causative (see ex. 158a)?

(241) a. *The window broke by the storm.
b. *The door opened by the wind.

Unlike the English *by itself*, the Japanese *katteni* cannot be interpreted as 'alone' and, consequently, it is ungrammatical with unergatives:

(242) *Taroo-ga katteni arui-tei-ru.
Taro-NOM by.self walk-PROG-PRES
'Taro is walking by himself'

Thus, combining *katteni* with an unergative appears to result in a similar contradiction as combining *katteni* with a construction that asserts an underlying cause. This suggests that, at some level, we construe the agent's will as the cause of the walking event, which then results in the intuition that a sentence such as (242) is judged as nonsensical. Unsurprisingly, then, the example becomes acceptable if the walker is, say, a robot that does not have a will:

(243) Robotto-ga katteni arui-tei-ru.
robot-NOM by.self walk-PROG-PRES
'The robot is walking by himself'

In a case such as (243) we know that the robot must bear some relation to the walking event but that this relation cannot be the relation of a willful agent; rather, perhaps, a relation such as Performer (cf. Parsons, 1990). This, presumably, is what allows *katteni* to combine with the construction.

Considering the Japanese data, and the fact that the *by itself* phrase is necessarily anaphoric and thus not a general device for specifying underlying causes, L&R's analysis of these phrases seems problematic. Thus, it seems to me that there remain no solid arguments for the presence of an underlying cause in unaccusatives. The data in (245) show further examples which confirm that the kinds of diagnostics that were used in sections 3.2.2. and 3.2.3. to detect an implicit causing event fail with English unaccusatives. In other words, while the distribution of by-phrases provided evidence for an underlying causing event in the Japanese adversity causative, (244), the distribution of by-phrases in English provides no such evidence, (245).

(244) JAPANESE ADVERSITY CAUSATIVE

Taroo-ga	sensoo-ni-yotte	musuko-o	sin-ase-ta
Taroo-NOM	war-BY	son-ACC	die-CAUSE-PAST

'Taro's son was caused to die on him by the war'

(245) ENGLISH

a. I cooled the soup by lowering the temperature.
b. *****The soup cooled by lowering the temperature.

c. Going outside cooled me.
d. *****I cooled by going outside.

Further, if unaccusatives were truth-conditionally equivalent to their causative counterparts, it is unclear why instrumental modifiers would not be able to combine with unaccusatives:

(246) ENGLISH

a. John broke the window with a stone.
b. The window was broken with a stone.
c. *The window broke with a stone.

It seems safe to conclude, then, that unaccusatives indeed lack a causative semantics in their intransitive uses.

Our final chapter discusses the consequences of the results reported so far for theories of external arguments.

Chapter 4. External arguments

4.1. How the external argument got separated from its verb

This dissertation has assumed throughout that verb phrases describe events such as *hitting a ball*, *laughing, playing chess* and so forth and that the universal inventory of functional heads makes available an element that can be used to add the individual doing the hitting, laughing or chess-playing to our event description. This view, of course, contrasts with the view in which the hitter, the laugher and the chess-player *are* part of the semantics of the verbs *hit*, *laugh* and *play*, and no additional head is needed for the introduction of the external argument. The claim that the hitter is not part of the semantics of *hit*, while the object of hitting is, seems surprising, even counter-intuitive. Nevertheless, it has become a standard assumption in current Chomskian syntax. Here I wish to review some of the existing empirical motivations for this claim, and then show how the properties of applicatives discussed in this dissertation also force us to assume that the external argument is indeed not an argument of the verb.

Marantz (1984) was among the first to argue that interpretive asymmetries between subjects and objects demand treating subjects and objects as bearing fundamentally different relations to the verb. According to Marantz, the object is a true argument of the verb, while the subject is an argument of the VP consisting of the verb and the object. Thus, for Marantz, the verb *hit* assigns the theme-role to the object, and then the VP *hit the ball* assigns 'the hitter of the ball' role to the subject. But *hit* itself, does not in any way select for the subject. On the basis of this proposal, Marantz predicted that objects should be able to trigger special interpretations of the verb, while subjects should not be able to do so. Marantz cites a wealth of examples illustrating this asymmetry, some of which are given below:

(247) OBJECT TRIGGERS A SPECIAL INTERPRETATION OF THE VERB
- a. throw a baseball
- b. throw support behind a candidate
- c. throw a party
- d. throw a fit
- e. kill a cockroach
- f. kill a conversation
- g. kill an evening watching TV
- h. kill a bottle (i.e., empty it)
- j. kill an audience (i.e., wow them)

(248) SUBJECT DOES NOT TRIGGER A SPECIAL INTERPRETATION OF THE VERB
a. The policeman threw NP.
b. The bozer threw NP.
c. The social director threw NP.
d. Aardvarks throw NP.
e. Throw NP
f. Harry killed NP.
g. Everyone is always killing NP.
h. The drunk refused to kill NP.
i. Silence can certainly kill NP.
j. Cars kill NP.

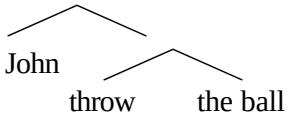
Bresnan (1982) and Grimshaw (1990) object to Marantz's claim and argue that subject-object asymmetries of this sort do not require us to remove the subject from the argument structure of the verb. Instead, we only need to assume that the subject is the *last* argument that composes with the verb. But as Kratzer (1996) discusses in detail, any formal execution of this would in fact need to stipulate in a rather ad hoc way that the subject cannot affect the interpretation of the verb while the object can. If the grammar has some mechanism that makes the interpretation of a verb dependent on its argument, then why should such a mechanism only apply to the internal argument, and not the external one, if both of these are true arguments of the verb?

Kratzer (1996) accepts Marantz's argument for separating the external argument from its verb but raises an important question about how Marantz's intuitive idea can actually be realized in the semantics: if the verb carries no information about the external argument, how can the external argument be projected by the VP? Marantz's original idea cannot be semantically executed without stipulating a special composition rule that essentially adds one more argument to VPs, Kratzer argues. As a solution, Kratzer proposes that the inflectional domain of a sentence includes the head Voice, which denotes a thematic relation and conjoins to the VP in order to relate an additional participant to the event described by the verb. The following section shows how the properties of applicatives discussed in this dissertation provide a novel empirical argument for having external arguments be introduced by a head other than the verb.

4.2. What applicatives tell us about external arguments

Imagine that subjects are true arguments of the verb and are realized as specifiers of V, as depicted below.

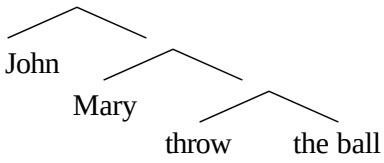
(249) VP-INTERNAL SUBJECT



Now imagine that this structure is in fact the structure of a Luganda sentence and we would like to merge a high applied argument into it, in order to derive the sentence *John threw the ball for Mary.* Clearly, the high applied argument could not be merged below the subject, as this would prevent the subject from saturating the verb's agent θ-role. Thus the only place to merge the applicative head would be *above* the subject, but this would yield us the wrong c-command relations and the wrong argument would raise to the sentential subject position. In contrast, if the subject is an argument of Voice and not of the verb, there is no problem merging the applicative head between the verb and Voice. Thus, any *syntactic* theory of grammatical phenomena such as applicativization must assume that external arguments are not arguments of the verb.

The situation would of course be different if the verb entered the syntax with the applied argument already added into its argument structure. Then we could have the structure below, where the subject is VP-internal and c-commands the applied argument exactly the way it is supposed to:

(250) VP-INTERNAL SUBJECT AND APPLIED ARGUMENT



This structure could be obtained if applicativization took place via a *lexical rule*, rather than by the addition of a syntactic head. For example, the lexical rule in (251) has been proposed to account for the appearance of applied arguments in the argument structures of Bantu verbs (Alsina and Mchombo, 1989; Bresnan and Moshi, 1993).

(251) APPLICATIVE (Alsina and Mchombo, 1989; Bresnan and Moshi, 1993):

$$\begin{array}{c} \varnothing \\ \Downarrow \\ <q \ \ldots \ q_{appl} \ \ldots> \end{array}$$

Here the external argument is a true argument of the verb and the applied argument is additional in the sense that it is added via a lexical rule. But now recall our result from Chapter 3 which suggested that causativization treats external arguments and high applied arguments *as a natural class.* In other words, we saw that if a causative is able to embed a high applied argument, it is also able to to embed a true agent and that if a causative *cannot* embed a high applicative, it also cannot embed an external argument. In the present theory this is easily captured since high applied arguments and arguments of Voice are both external arguments which compose with the verb precisely in the same way. Thus they can be hypothesized to define a certain domain that causativization is sensitive to. In contrast, the lexicalist approach depicted in (251) posits no similarity between the applied argument and the agent: the agent is a true argument of the verb and the applied argument is added via a rule. It is unclear how a theory of this sort could predict causativization to treat these two elements as the same.[35] Any correlation between the possibility to embed high applicative morphology below CAUSE and the possibility to have agentive modifiers scope below CAUSE would be left accidental.

To the extent that the similarity of high applied arguments and arguments of Voice survives further crosslinguistic testing, it constitutes a strong argument against any theory that does not assume that external arguments and high applied arguments bear some fundamental similarity to each other. At present, this similarity is best captures via the syntactic approach where both kinds of arguments are introduced by functional heads combining with the VP.

[35] In fact, it is unclear how causativization could ever fail to embed an agent, since the agent is an intimate part of the semantics of the verb.

Chapter 5. Conclusion

In the *Minimalist Program*, Chomsky articulated an extremely stringent hypothesis about the architecture of the language faculty: Universal Grammar has only one computational system and any variation between languages reduces to differences in the lexical items that enter the computational system (Chomsky, 1995). Universal Grammar, by hypothesis, makes available an inventory of functional elements from which each particular language makes its selection. When it comes to cross-linguistic variation, the burden of explanation is then entirely on the nature of the primitive building blocks of syntactic derivations. What are the properties of these elements such that crosslinguistic differences can be accounted for by simply selecting different subsets of them? This dissertation has developed and supported a explicit hypothesis about a subset of these basic building blocks, i.e. about those elements that are responsible for introducing additional arguments into verbal argument structures. I have argued that applied arguments are introduced by two different types of heads, high and low applicatives, which themselves come in many sub-varieties. In the domain of causativization, I arrived at the perhaps surprising conclusion that causer arguments are actually not introduced by any element that encodes causation in language; rather they are introduced by Voice just like all external arguments. The element with the true causative meaning, i.e. CAUSE, does not introduce any overt syntactic argument, but rather an implicit event argument, whose presence we can, however, detect by careful experimentation.

The underlying motivation for positing syntactic argument-introducing heads is to explain argument realization without a linking theory. To truly eliminate a need for a linking theory, the syntactic account has to have two properties. First, the proposed pieces of the derivation must be defined so that they can only combine with each other in ways that derive grammatical structures and not in others. Second, each argument-introducing head must not introduce more than one argument. Otherwise, the order of association would need to be stipulated, which, again, begs for a linking theory. In conclusion, and in order to inspire future work, I will outline precisely how the present work falls short of these objectives.

The analysis of low applicatives argued for here quite obviously involves a head that introduces more than one argument. The low applicative head selects for both the direct object and the low applied argument, and, indeed, the order of association was simply written into the lexical entry. As far as I can see, a nonstipulative solution to this could have two different forms. One possibility is that the low applicative head indeed introduces both arguments, but the two arguments are not ordered; either one can combine with the verb first. In this were so, we would expect to see structures that look like the double-object construction but where the recipient comes last. This idea is of course not crazy, since structures

like this do exist: *I gave the book to Mary*. The question, though, is whether the PP-variant of double-object constructions is similar enough to the double-object construction to make this analysis plausible. It seems to me the answer is no. For example, when the recipient and theme are both scope-bearing elements, scope is free in the PP-variant but frozen in the double-object construction (Larson 1988, 1990, Aoun and Li 1989, 1993, Bruening, 2001), which seems a strong argument for positing different structures to the two constructions.

The other non-stipulative solution would of course involve two separate heads in the low applicative. Indeed, the low applicative head proposed here is semantically rich enough that it is easy to imagine how its semantic weight could be distributed to more than one head; perhaps one of them could express possession and the other directionality. How to semantically execute this is non-trivial, but there seem to be some empirical evidence that the low applied argument and the direct object are not quite as tight a unit as the analysis argued for here suggests. In Chinese low applicatives, for example, adverbials such as *twice* can occur between the direct object and the applied argument (Soh, 1998). Hopefully in the future data such as these will help us to more fully understand the inner structure of low applicative phrases.

The second way in which the present work does not fulfill the requirements for a theory that truly eliminates the need for a linking theory has to do with external arguments. In this dissertation I have shown evidence that Voice and high APPL are in some way similar elements: causativization is sensitive to some boundary that both of these heads define as they both introduce an argument that is external to thE verb phrase. But something essential is lacking from this account since obviously there is also a crucial difference between arguments of Voice and high applied argument: Voice always merges above APPL and not vice versa. Thus is seems that high APPL and Voice both define a certain boundary that causativization, for example, is sensitive to, but in addition to this, Voice is special in that it defines a boundary after which no more participants can be added to the event described by the verb. After adding Voice, the only way to keep increasing the argument structure of the verb is by causativization, which introduces a new event, but not all languages have a causative head that can attach this high. Consequently, most languages only ever have one true external argument in a single verbal domain. Why this must be so is an intriguing question that I must leave open here. But hopefully the research reported here will help us take the next steps towards understanding why external arguments define the domain they do.

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